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PSYCHOLOGY AND RELIGION

A Study by a Medical Psychologist

BY

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PREFACE

THE genesis of this book can be briefly stated. Chapters VII and VIII on "Psychology and Religion" (with minor alterations to fit them for reading by a non-psychological public), together with part of Chapter IX, constitute the presidential address which I gave last November to the Psychiatry Section of the Royal Society of Medicine in London. It was briefly reported in *The Times* newspaper, but as the Royal Society of Medicine declined to publish it in its Proceedings, I decided on printing it as part of the present book, in order that the views expressed in it might obtain both publicity and criticism. At the same time it seemed to me that this application of psychology to religion would be much better appreciated if it was preceded by an account of the relations between religion and science prior to psychology, leading up, that is to say, to the present position of the conflict between them. Hence came Chapter V, "Science and Free-Thought under Christianity" and Chapter VI, "Christianity as affected by Science." Finally, I decided to add Chapters II, III, and IV on religion,

science, and magic respectively, in order to consider each of these separately, since some knowledge of all three is needed in following the later chapters. Some readers, perhaps, will think I have gone unnecessarily far afield in including a brief history of Christianity and another of science. My experience is, however, that while many are familiar with the history of Christianity, few seem to know the history of science, and very few know both : in fact, so far as I am aware, this book is the first to include both histories inside the same covers. In any case, readers who are already acquainted with some or all the historical facts given can just turn over the pages that contain nothing new to them.

I believe that some of what I have written has the merit of originality, but it is difficult for me to say. After reading a great many books bearing on the subject, and receiving many new ideas from them, it is only too easy to think that an idea is one's own when really it has come from somebody else. It may also be that others have anticipated me in books I am not acquainted with. I am ready, therefore, to hear from any reader that I am mistaken about the originality of some or every part of the book, and that it is only a case of not keeping myself up to date. Similarly, I shall be grateful to have errors of fact pointed out, for though I have

tried to be accurate I hardly hope to have avoided mistakes.

The names of the authors to whom I am chiefly indebted are set out in the Bibliography. I am specially beholden to the writings of Sir James Frazer and Prof. Freud, which are the stimulus to the whole book; and I am under very considerable obligation to the works of Grant Allen, J. M. Robertson, and Prof. Charles Singer. The last-named has published timely and useful studies of both the early history of science and the historical relations between religion and science.

DAVID FORSYTH.

Harley Street, W.1.

May 1935.

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CHAPTER I

INTRODUCTION

FOR as long as I can remember, the contradictions between religion and science have had a special interest for me. I hardly like to recall how often, as a child, I distressed my excellent religious teachers—and how often they prophesied a bad end for me—because I was quite unable to smother my doubts about many of the improbabilities they pressed upon me. My grievous trouble was that my common sense told me they were almost certainly wrong, and yet their reproaches made me want to believe they were right. Like many another, I had been baptized a member of the Church of England at an age when I could not possibly have formed any ideas about religion or anything else—I am told I made a great ado all through the service, as though even then I took unkindly to ecclesiasticism.

As a youth I was sent to classes preparatory to confirmation. I suppose that at these some of my unorthodox opinions must have betrayed themselves—in fact I am sure they did—because I was soon transferred to a

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series of private interviews with another clergyman, with the result that I duly submitted to confirmation alongside my class-mates. I still have a lively recollection of the ceremony, especially of two details in it—my feeling of impotence to stand out against it, and my anxiety lest my knees should slide under me on the polished floor at the critical moment. Happily for me, bishops do not include thought-reading among their many undoubted accomplishments, else I should have feared a calamitous fate for myself, like that of the famous jackdaw after it had incurred episcopal displeasure.

For a year or so after this I attended communion, trying unsuccessfully to acquire what I was told was the proper spirit; but thereafter I desisted, and my abstention, as events have proved, has continued now for forty years. During this time my interest in matters religious has often led me to services in not only Protestant and dissenting Protestant churches, but Roman Catholic also—including mass in St. Peter's, celebrated by the Pope in the presence of the College of Cardinals—and it has taken me into Mahometan mosques, and Hindu, Jain, and Buddhist temples. If, therefore, my sectarianism is badly suspect by all this, at any rate I might plead a measure of religious cosmopolitanism.

My interest led me further to a study of religions, living and dead, comparing their teachings and beliefs; and I found that Christianity, which at one time had filled my religious horizon, was only one among a multitude of religions, and that when studied alongside these it appeared in a very different light. I also discovered that, while Christianity had been put before me in my susceptible childhood as the only true religion, there were many other religions each of which was represented to impressionable children in different parts of the world as the only true one. This was plainly absurd, and it was difficult not to conclude that probably all religions were part true and part erroneous. It seemed to me that what was true in them must be a deep, underlying religious impulse shared by them all, and common to humanity, and that their mistakenness lay in the forms in which this impulse comes to expression in their mutually contradictory beliefs and dogmas. This view proved to have a very useful application to the psychological nature of religion.

I only mention the very many hours of unhappiness which my religious instructors put upon me as a boy, by their confident assurance that my natural scepticism was of the Evil One, in order to provide evidence that I must have greatly wanted to redeem

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myself in their estimation. As a result I grew up, not with any antagonistic feeling towards them, but in the hope that one day I should be able to harmonize and reconcile the differences between religion and faith on the one side, and the common sense and scepticism on the other, which I came to realize represented science. But this I have never been able to do. Instead, I gradually found, in connection with the rise of modern psychology, that religious phenomena were susceptible of scientific explanation, like other mental phenomena. In this way it became possible, not indeed to reconcile religion and science, but to understand and account for the religious manifestations of the mind by the same scientific method that had been able to understand other natural phenomena, from planetary motion to chemical digestive processes. It is the results of this modern research that form the main theme of this book.

It will be agreed that the conflict between religion and science is a subject that interests almost everybody. Though it has been in the foreground of discussion only for less than a century, probably since Darwin's work on evolution, very much has been written about it on both sides. Most of this is polemical and shows little disposition to understand the two opposite points of view, still less to harmonize

them. More recently, with a new spirit of toleration abroad, many who see the good that is to be found in both religion and science are looking for a possible reconciliation between them. Some indeed, scientists as well as religionists, are beginning to say that there is no inherent conflict between them: given time and a sincere wish to take the large view the difference will be composed.

Where are we to look for this more enlightened understanding which will enable both religion and science to be seen in their proper relationships? Metaphysics, with its abstract speculations, is no more help here than elsewhere. Philosophy has never been able to render this service, and is little likely to now that we understand that each system of philosophy is only an individual's way of looking at life. As such it has the fatal disadvantage that any one person cannot possibly take a comprehensive view of life, and his philosophy can appeal only to those of similar mental outlook. For this reason most of us have had the disappointing experience in studying different philosophies, that only a part of a few of them appeals as true. It might almost seem as if we should have to await the advent of some super-mentality which would be big enough and wide enough to stand outside and above both religion and science. From this dispassionate and

disinterested position it would be able, by virtue of some higher experience, to show to us of smaller mould how the contradictions between religion and science can be harmonized.

Whether this manner of solution will ever be attained can hardly be said, and at present we have no alternative but to seek elsewhere for the enlightenment. It would seem that this can be expected only in two directions. It might be possible for religion to throw light on science. Alternatively, science might furnish a better understanding of religion. But when we look for the illumination which religion has thrown on science we must admit that it is hard to find. Perhaps for the reason that religion seems so complete in itself, it has never attempted to explain the scientific attitude of mind. Perhaps also, because it is venerable and settled in its beliefs, it has shown no particular interest in science, which is of new growth and notoriously changeable in its views.

Is it possible for science to throw any light on religion? Here we find an answer of a different sort. Since the Renaissance and the contemporary breaking away of Protestantism from Roman Catholicism, successive discoveries of science have afforded an understanding, not indeed of the great and fundamental problems of religion, but of cer-

A beginning was made in the middle of the sixteenth century, when the old-time religious views on the universe were shown to be wrong in a work by Copernicus. The Church taught that God had set the world in the middle of the universe, with sun and planets revolving round it, thereby marking his special regard for mankind. But Copernicus proved on the contrary that the earth and planets revolved round the sun. Later astronomical discoveries further modified the old views of the universe, until we have now come to know that the earth is only one of myriads of stellar bodies, and is of small importance among them. Again, in the middle of last century the story of the creation as given in Genesis was called into question as the result of biological work on evolution. Later the discoveries of geology showed that animal life had only gradually developed by a process of evolution over æons of time, and that human remains were to be found solely in the most recent geological deposits, man himself beginning in palæolithic times as little other than an animal.

Scientific observation came to show that animals and plants arose only by a process of reproduction, like begetting like, and never by spontaneous generation. The essentials of this reproductive process were common to nearly all animals and plants. It gradually became known that the structure and functions of the human body had many affinities and similarities to those of animals and even of plants; and the human embryo was found in its earlier development to pass through the same stages as those of animals. Organs in a state of rudimentary development were discovered: in whales the bones of hind-legs buried in their bodies, in horses imperfectly developed toes beneath their skin, in man a rudimentary tail. All these were difficult to harmonize with the biblical account of creation.

Most surprising of all has been the comparative study of religions, including religious mythology and the religious beliefs and practices of primitive and ancient races. A new and unexpected interest has been given to the central beliefs of Christianity—the Virgin Birth, the Atonement, and the Trinity—by finding the identical beliefs in non-Christian religions. We now know that the later higher religions are the outcome of a process of gradual development. They began by being grafted on to

pre-existing contemporary religions, and still show unmistakable evidence of their origin. Among many examples of this may be instanced the two chief Christian festivals of Christmas and Easter. Christmas is celebrated as the anniversary of Christ's birth, though no one knows on what day of the year this was. The festival was taken over from pre-Christian religions, several of which celebrated it as the date of the winter solstice, when the sun began its return to the northern hemisphere. Similarly, Easter commemorates the Resurrection of Christ, though the date of this cannot be known, and in any case it is a movable feast. Its pagan origin has been proved on several grounds, one being that it is still fixed to meet the three astronomical conditions—that it must fall as near as possible to the spring equinox, must come shortly after a full moon, and must be observed on a day sacred to the sun.

The comparative study of religions has in the same interesting way brought the Eucharist as the central rite of the Christian religion into relation with similar pre-Christian rites. The Eucharist, which is the sacramental eating of bread and drinking of wine, is, as Frazer, Grant Allen, and others have shown, far more ancient than Christianity itself. In pre-Christian days the rite was celebrated

in honour of gods of cultivation, especially those of corn and wine. Outstanding examples of this are found in the ancient worship of Attis and of Adonis. We shall learn more about the primitive origins of the Eucharist in a later chapter.

Here then are a few instances of the better understanding of some features of religion which has resulted from the investigation of them by science. It will probably be agreed that they are illuminating enough to show the value as well as the interest of extending them to a study of the subject in some detail. The most recent scientific understanding of religion has come from the direction of psychology, and this we shall deal with fully. The better to appreciate this modern position, we shall lead up to it by first tracing the relations which have existed between religion and science in historical times and especially since the Renaissance. We shall find that religion and science are different aspects of human activity, and that history proves them to be two aspects that conflict with each other. Further, magic will be represented as the third aspect of human activity, no less important than the other two: indeed, without a knowledge of magic we shall not be in a position to understand the relation between religion and science.

Though the fact of a century-old conflict between Christianity and science will be accepted as established beyond question, the precise nature of this conflict has hitherto eluded both religionists and scientists. This is the problem that will be taken up in the chapters on psychology and religion. It will be shown that modern psychology has succeeded in identifying the nature of this conflict, and explaining it in scientific terms. This it has done by applying the scientific method for the first time to the phenomena of the human mind. It has been able to study the religious side of the mind along with its other sides, and to bring them all under one scientific explanation. We shall see that it has succeeded in accounting for the supernatural world of religionists, and relating it to other imaginative products of the mind, including fantasies, hallucinations, and ~~delusions~~. At the same time it has been able to identify the psychological nature of the scientific impulse, and establish its relations to both magic and religion. From this the important inference will be drawn that magic and religion stand close together as more primitive expressions of the human mentality, while science is separated from them as a later and more highly acquired activity which has developed in the course of evolution. Finally, it will be concluded

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from these psychological investigations that the aims of magic and religion on the one hand, and of science on the other, are incompatible and irreconcilable.

CHAPTER II

RELIGION

IN religion we recognize one of the foremost influences that has shaped mankind for several thousands of years. As far back as historical records go, in ancient Egypt, Babylonia, and, as we now know, in the still remoter Sumerian civilization at Ur, proofs are to be found of contemporary religious worship. This is true also of the New World, among the Aztecs, the Incas, and the earlier Mayans. Today religion remains a leading power among all peoples, primitive and civilized. Though we meet it through all historic ages, we can, however, only suppose that until a certain stage in his biological evolution man was without religion.

It is a something innate in human nature; but most who have curiously asked what this something is, what religion represents, have found the answer not easy. A definition of it would be little helpful, and we shall try in later chapters to identify and understand its various aspects. For the present it will be enough to say that the most distinctive

characteristic of all kinds of religion is probably their concern with the supernatural—with a “ spiritual ” world which is other than the natural world around us. This concern, which usually leads to the spiritual being marked off as holy and sacred, finds different expression in successive stages of religious evolution. Primitively, it includes a belief in spirits and demons inhabiting the natural objects of everyday life—trees, caves, streams; and evil spirits abound more than good. This level of “ animism ” is marked also by acts of prayer and propitiation to secure a spirit’s goodwill.

Among more civilized communities animism has given place to a belief in several gods which are associated with communal interests. Common examples of these are corn gods, wine gods, maize gods, rice gods; almost as frequent are sun gods, rain gods, and thunder gods; while rather later come gods of war, gods of fertility, and so on. Many races, like the ancient Greeks and Romans, never get beyond this pantheistic stage, but the highest civilizations replace it all by a single God; with him may go a single god of evil, or Devil.

A second outstanding characteristic of religions is a peculiar interest in the subject of death. This applies equally to the religions of the primitive and the civilized, and is responsible for a hope of im-

mortality and a special interest in conditions after death.

Yet another characteristic of religions is their conservatism. They tend to resist change and innovation, not only within the boundaries of their own beliefs and practices—tradition here counts for a very great deal—but also in tribal and national life. In keeping with this they set store by the more permanent and so-called “higher” values relating to life, giving them precedence of the everyday terrestrial welfare of individuals. Again, all religions, except possibly the simplest, occupy themselves with standards of ethical conduct and of morality, especially sexual morality.

If we compare the beliefs of different religions little uniformity among them is apparent, and often they are contradictory and mutually exclusive. It seems that every religion firmly holds its own beliefs as true, and all others as false. For this reason intolerance is another of their notable features. All these characteristics will be considered more fully later.

During historical times the world has seen many religions, most of them long since dead. They begin, they grow, they decay. Today mankind is divided into six or seven great religions. The origins of some of them are obscure, but animism is presumably the oldest, and is held to be the religious

state of some 136 millions. Probably the next in age is Brahminism (Hinduism), the predominant faith in India. Its earliest sacred book, the Rig-Veda, is held to date from some time between 1500 and 1000 B.C.; its present followers amount to 230 millions. Almost equally ancient, if we date its origin to the earlier periods covered by the Old Testament, is the Jewish religion, though Jews now number only 16 millions. Confucianism, with its 350 million adherents in China, and Buddhism with its 150 million in Ceylon, China, and Japan, both arose about the sixth century B.C., the one representing the teachings of the Chinese philosopher Confucius, and the other those of the Indian, Gautama Buddha. Compared with these, Christianity, with its 692 million followers, is more recent, while Islam, with its 209 million, dates only from the sixth century A.D., the period of the life of its founder Mahomet.

The figures quoted above are only conjectural, but if they are to be accepted Christianity is the most widely held of the great religions. As a European religion it is necessarily of chief interest to ourselves, especially in relation to science, which is another product of European civilization, and the following historical outline gives the well-known facts in its development.

Only very slowly after Christ's death did Christianity secure numerous adherents. The earliest Christians formed a "society," governed by the twelve apostles and their delegates: their faith was a doctrine homogeneously taught by men of varied mentalities. As a new religion, Christianity ran counter to every established faith, and was therefore generally regarded throughout the Roman Empire as heretical. In Rome it was represented as subversive of the civil authority, and atheistic in relation to existing religions. For many years it was persecuted by the Roman emperors, especially in the third century, though by no means as extensively or as ruthlessly as Catholic and Protestant historians have represented; but early in the fourth its fortunes changed when it was accepted as the religion of the Empire. This official recognition came at the hands of Constantine the Great, soon after he had transferred the seat of government from Rome to Constantinople (the old Byzantium). Under his successors Christianity spread, and its four chief bishoprics were at Constantinople, Antioch, Alexandria, and Rome. Constantinople took the precedence.

The next three centuries were probably the most important of all. During this time Christianity, which at first was only a simple religion, was engaged

in elaborating its intellectual side in the form of doctrinal beliefs. This was effected partly by the writings of gifted thinkers, and partly by a succession of Church Councils. Justin, Origen and Tertullian are outstanding names in the early formulation of the Christian theology; and after Constantine there began the period of the "Fathers," including Athanasius, Basil, and Cyril in the East, Ambrose, Jerome, and Augustine in the West. The resulting vigour that was given to the Church has led some Catholics to style these centuries the "Latin Renaissance," though they are more commonly known in history as the "Dark Ages."

The doctrines which were formulated at this time became incorporated as essentials in the Christian faith, and century after century they were strengthened with all the added authority of tradition. Little or no variation of them was permitted, and they survive to the present time in one or other of the Churches into which Christianity was destined to split. It is a fact that the Churches of today are regulated by the opinions of men who have been dead more than a thousand years. This antiquity is a matter of genuine pride to the Churches: modern secular opinion can only ask whether twentieth-century civilization is not in need of guidance by twentieth-century ideas.

The Church Councils—20 were held in 1200 years—were at first occupied in shaping the chief beliefs of Christianity, thereby banning the heresies which were not infrequent in those days. History records that each new doctrine was the cause of acute dissension. Much controversy took place, and so profoundly was contemporary opinion stirred that in every doctrinal strife the parties proceeded to bloodshed, and sometimes massacre. Of all the heresies that were dealt with in this way, probably the best known is the Arian, which led to the official formulation of the Deity as three-in-one. Arius denied the divinity of Christ, in opposition to the trinitarian opinion of Athanasius, Bishop of Alexandria; and the famous Council of Nicæa was called in A.D. 325 to deal with the dispute. Arius maintained that "the Son is totally and essentially distinct from the Father," and he had powerful supporters of his view; but the Council enacted that the Son was of the same essence as the Father, and one-with and yet born-of the Father.

Of the 1800 Christian bishops only 300 attended the Council, and the matter was settled by a majority vote. As a result Arius was exiled, and the leading bishops on his side deposed; his writings were burned by order of Constantine. Five years later he was recalled, and the Arian bishops restored,

Athanasius now being banished by another Council. Before long Arius died at Constantinople, apparently by poison, and Athanasius again resumed office at Alexandria. A long period of conflict followed between the two parties, each in turn carrying out massacres on the other in their endeavour to settle whether the trinitarian view of God was right or wrong.

This Arian heresy, though officially banned so very long ago, has shown a remarkable vitality, and has never been altogether eradicated. It survives today among the Unitarians, who maintain that God is one person, and not three as the orthodox Trinitarians hold. Happily religious bodies today no longer wish to show violence to their opponents, but sectarianism has taken its place, and so great is the importance attached to this detail of the Christian faith that members of the one party decline to admit to their churches members of the other.

Another of these doctrinal disputes is worth recording, as it helped quite by chance in reintroducing the scientific discoveries of ancient Greece into mediæval Europe. It arose in connection with the question of the divinity of Christ. Nestor, a bishop of Constantinople in the fifth century, agreed that Mary was the Mother of Christ the man, but denied she was the Mother of Christ the God. A

Council was called about it at Ephesus in 431, and decided against Nestor: it enacted that Christ's two natures were indivisibly one. Nestor had to suffer the consequences of his heretical view: he was banished for blasphemy, and finally exiled to Arabia. Here he became founder of the Nestorian Church, which spread far into Asia. His followers, also expelled from Constantinople, had carried with them many Greek manuscripts, mathematical, astronomical, and medical; and in this way all the sciences of the Greeks came into the possession of the Arabs. Later the Moors, spreading along Northern Africa into Spain, brought with them Arabic translations of Syriac translations of the Greek, and these came to be translated into Latin for European use.

Meanwhile, as the Church continued to flourish, worldly motives came to count for more and more in its affairs. Constant dissension arose between the four leading bishoprics (now known as Patriarchates), and especially between Constantinople and Rome. Neither of these was willing to acknowledge the superior authority of the other, and each tried to impose its own. At one time the Bishop of Rome formally excommunicated his colleague of Constantinople. This strife went on for several centuries, and all the while, the Rev. C. C. Martindale tells us in his *Religions of the World*, theology counted for

little and political ambition for almost everything. Rome secured an advantage when its bishop distinguished himself from all of his kind by taking the title of Pope. The differences culminated in a final severance in 1054, which divided the Christian Church into Eastern (Greek) and Western (Roman) parts. The Roman Catholics agreed with the Greek or Orthodox Catholics on many points, but differed from them on some matters of doctrine and belief. The separation has continued to the present time. The Orthodox Catholics are chiefly located in Eastern Europe, including Greece, the Balkan States, and until recently Russia, and are said to number some 144 millions, as against the 331 millions of Roman Catholics all over the world. These figures, though the latest available, are also conjectural, and seem not to have allowed for the revolution in Russia.

The Roman Papacy grew prodigiously in spiritual and temporal influence, and in wealth. The only popes to be given the title of Great were the two who most successfully advanced its interests, namely, Leo I and Gregory I. Leo I (440) established the Church's local patrimony on the fall of the Western Empire, and thereby secured the means of its later expansion. Gregory I (590) established its spiritual authority in the northern countries of Europe: it

was he who sent the lesser Augustine to Saxon Britain in 597. By about the twelfth century the Pope's power had so grown that he could count himself the equal of kings, and on two historic occasions was able to prevail over even an Emperor. In matters spiritual his authority had come to be paramount, and the Roman Church tolerated no views except its own. Its vigorous and cruel measures against unorthodoxy will be considered in a later chapter.

It is instructive for us nowadays to realize that throughout the Middle Ages the papal authority permeated practically every aspect of contemporary society. The Church controlled the everyday life of the people in the many countries to which its influence had spread. It was the sole arbiter in everything relating to education and learning. For a thousand years all vital knowledge was restricted to the Church. At the older universities of this country ecclesiastical authority remained decisive until within living memory. All affairs connected with birth, marriage and death were dealt with and determined by the Church exclusively. The care of the sick and the poor was entirely in its hands. For many centuries it prescribed the social and economic ordering of life; it represented the extent of the social edifice, if it was not the edifice itself.

In this country the Church held almost half the cultivated land. The high offices of state, including the lord chancellorship, were open to ecclesiastics and customarily filled by them. Ecclesiastical courts were established, and their jurisdiction extended not only over clergymen accused of crime, but over laymen for spiritual offences, including blasphemy. Other ecclesiastical courts dealt with marriage and matrimonial affairs, and others again with probate and grants of administration.

When we compare the Church's pre-eminence in these earlier times with its position today, we realize how great a change, spiritual and temporal, has come to it. Its decay, as we shall now see, developing only slowly, has spread increasingly rapidly until the present time.

No considerable decrease of its power is to be noted until the Reformation in the early sixteenth century. This marked the beginning of the decline of papal and indeed of religious authority. Earlier attempts to reform the Church had been made unsuccessfully, but it was only when Luther in 1517 attacked the abuse of indulgences that the Reformation was given an enduring start. This became the great religious movement of the sixteenth century, by which the various Protestant Churches—protesting against certain aspects of the Papacy—

separated from the Roman communion. Protestantism substituted the Bible for the Pope as the final authority. It thereby helped to establish individualism against what had become a harsh and repressive papal authority. It won from the Church a measure of liberty of belief, which has grown into the right of freedom of thought such as we know today.

The Catholic Church by no means allowed this secession to take place without resisting it. It tried hard to crush Protestantism in every country in which it appeared. This it did by using the powerful ecclesiastical weapon of excommunication, by burning individual heretics and by massacring them in numbers. In some cases it availed itself of the armed forces of Catholic States in an endeavour to stamp out Protestantism in separated States.

In England the break with Rome was effected in 1534 by Henry VIII, when he repudiated the Pope's authority and established himself as Head of the Church in England, a body independent of the Papacy. The process of free-thought which he had thus aided advanced another step under his successor, when Nonconformity originated. Nonconformists were Protestants, that is to say, protestors against the Roman Church, but nonconformist in that they declined to conform to all that the Church of England required.

In this new situation the Church of England was now the dominant power, and it repeated in some measure the repressive action of the Roman Church. It tried, through the sixteenth and seventeenth centuries, to crush Nonconformity by a succession of legal prohibitions which aimed at securing uniformity of religious belief. Nevertheless, Nonconformists persisted and multiplied. In 1729 a large body of Church adherents broke away under the leadership of the brothers Wesley to form a dissenting body still known as Methodists. Nearly a century later the Methodists split, and the Primitive Methodists separated from them. This process of schism has continued as a result of individuals claiming freedom of religious belief even on points of subordinate importance, and today in this country there are more than a score of religious bodies. At the same time the majority of people attend no place of religious worship, and just as the Pope's authority was rejected at the Reformation for that of the Bible, so now the authority of the Bible is widely questioned.

The establishment of the Protestant Church of England failed to stay the decline of religious influence. This continued all through the seventeenth and eighteenth centuries, until in the early nineteenth the religious life of the English Church reached its lowest point. With few exceptions the

clergy had little idea of spiritual vocation for themselves or of religious obligations to their parishioners, and more than half of them were non-resident. One of the bishops only once in thirty years set foot inside his diocese. Cathedral dignitaries, in addition to their opulent stalls, held several livings apiece, leaving curates at £100 a year to do their parish work. The salary of the Bishop of Winchester was £50,000 a year. The sacraments were administered infrequently, and often with shocking irreverence; the only Easter Day Communion in St. Paul's Cathedral in 1800 was attended by precisely six communicants. These details are taken from an article, "The Oxford Movement," in *The Times* newspaper for 8th July, 1933.

This religious apathy, inside the Church as well as outside, continued until the Oxford Movement, which began in 1833 and was initiated by John Keble. This started a change which has continued to the present time. Today the Church of England shows a proper sense of its spiritual responsibilities, and absenteeism and pluralism are rare. Religious opinion shows less disposition to enforce itself on those of other ways of thinking, and toleration is being manifested even in religious sectarianism. The reunion of religious bodies which had separated in the past has been effected in one or two instances.

A new expression of religious activity is found in the many kinds of social work now undertaken by the Churches, ranging from athletic clubs to zenana missions. This dates from the efforts of the Christian Socialists, especially F. D. Maurice and Charles Kingsley, in the middle of last century. Today the most recent subjects with which the Churches, especially the Protestant and Nonconformist, have concerned themselves include political questions such as capitalism and unemployment, anti-war propaganda, slums, and overcrowding. In brief, religion has taken on humanitarianism, that is, concern for the human, not the divine, interests of mankind. These kinds of social activity are held by some religionists to be not properly a part of religion; but by others of them the claim is made that the present-day duty of the Churches is to awaken the public conscience on precisely these matters.

Religious movements and revivals have occurred often enough in the past, some of them proving lasting and others temporary, and the final effect of the Oxford Movement remains to be seen. In spite of it, the hold of the Churches on the community is unquestionably weakening, and at a rate which is rapidly increasing. Many fewer professed Christians are to be found, and church congregations

become smaller. The widespread abstention among all classes from any kind of religious practice is generally admitted by the Churches themselves. "All churches at the present time," the leader of one of the chief dissenting religious bodies in this country is recently reported to have declared, "are confronted by a world indifference and unconcern with regard to anything they say or do. . . . A vast majority of men and women in this country are outside the Church." He added, referring not to any one Church but to all of them, "They are on the defence, endeavouring to keep back the forces of defeat and decay." That this opinion is not unduly pessimistic is evident from the conclusions of a recent representative committee appointed in 1934 by the Archbishops of Canterbury and York. The committee reports that 80 to 90 per cent. of our population of 40,000,000 do not attend a place of worship. Incidentally, the report does not put forward any suggestion to compel their attendance—a remarkable commentary on the spread of toleration since a couple of centuries ago, when the Church of England was able to make non-attendance at the parish church a penal offence.

Two entirely novel developments in religious life have appeared abroad. In European Russia, with its 162 million inhabitants, the Orthodox Catholic

Church has been suppressed, together with the teaching of religion. Public religious worship, though permitted by the Soviet Government, is carried on only to a very limited extent. In Turkey also, a Mahometan country of 14 millions, Islam has been dealt with in almost the same way as Christianity in Russia.

The important conclusion to be drawn from this chapter relates to the very great decline of Christianity as a professed religion, and of the authority of the Christian Churches in national affairs. From mediæval times, when Christianity reached the peak of its development, until today, this decline has been continuous. It has gone on with gathering speed, until now only the shadow remains of the Churches' bygone influence. This should be remembered when their present difficulties are represented as something temporary, and even in the nature of a passing crisis. History tells us otherwise. It points, indeed, not only to the Churches' further and still more rapid decay, but even to the eventuality of Christianity being superseded by some other humanizing power.

CHAPTER III

SCIENCE

THOUGH science is commonly regarded as a product of modern civilization, its beginnings, like those of religion, can be traced back to remote ages. Its origin was probably as primitive and widespread as that of religion itself. In contrast with religion, whose chief concern is with the supernatural, science is occupied with the natural world around us, that is, with the world which is perceived by our bodily senses.

Only thus far do we find agreement between scientists; when we try to go further in understanding the nature of science, we meet differences of opinion among scientists themselves. In fact Professor H. Levy, in his recent book *The Universe of Science*, has been at pains to collect the views on the purpose of science of seven well-known living scientists, and no two of them agree. It is certain that in the early days of modern science few if any scientists had any clear idea of the nature of their work, most of them, Newton included, believing that it went to

confirm what religion taught. Very few of them detected in it anything antagonistic to religion.

Only recently has it become possible to speak at all explicitly on the matter. This much can probably be said. The aim of science is to enlarge our knowledge of the natural world. Its practical purpose is to use this greater knowledge for our material advantage. Its processes are those of invention and discovery; and its method is always that of experiment—of “trying and seeing” how a thing is, instead of “thinking” how it might be.

This applies to modern scientific discovery, but reflection will show that it is also true of science in its primitive and prehistoric stages. From the time of his first emergence, man has been engaged in the difficult task of acquiring knowledge of the natural world, and using it for his material advantage. These attempts of primitive man must represent the earliest manifestation of the scientific impulse. The first eolithic man to use a flint for cracking his adversary's skull was applying the scientific method. The first shelter built against rain or sun, the first garment of skin to be worn, the first hammer, knife, or bow and arrow—these successive discoveries in the course of human development are essentially scientific, as are the later contrivances of the first lever, raft, plough, and cart-wheel. These early

inventors were great benefactors to humanity, though no memorials of them remain.

Among present-day savages, as Professor B. Malinowski has shown us in his *Magic, Science, and Religion*, certain aspects of their daily activities are unquestionably scientific. This applies, for example, to their agricultural work with its evident knowledge of seasons, weather, crops, and soils, to their canoe-building and understanding of the principles of sailing, to their fishing, fire-making, and warfare. "There is no doubt," says Professor Malinowski, "that even the lowest savage communities have the beginnings of science." And again, that their science "is crude, rudimentary, and inchoate, but with all that it is the matrix from which the higher developments must have sprung."

It would seem that science, first showing itself among the most primitive peoples, represents an impulse which is natural to mankind, a something innate in human nature. In these respects it is the counterpart of religion. These are matters that will be taken up more fully later.

Of the early development of science within historical times the account is very incomplete. Far fewer records are available than for the history of Christianity. The reason for this is not difficult to find. There has been no scientific institution for the

recognition and support of science, as there has been a Christian Church for religion. It is known that a great deal of the scientific learning of the ancients had been collected in the Great Library at Alexandria during the third and second centuries B.C., and when the library was burnt down by Julius Cæsar in A.D. 48, science suffered a great loss, though the extent of it will never be known. No comparable library existed before or since, until modern times.

It might have been supposed that the Church, with the respect it pays to tradition, would have been concerned to preserve ancient scientific manuscripts; but this is not the case. Christianity has never shown that it valued scientific works, or was interested in saving them from harm. On the contrary, as we shall learn, its attitude to scientific discovery has been antagonistic, especially on the ground that science tended to criticize accepted religious teaching, and that its influence therefore was evil. At the least large numbers of scientific manuscripts have been destroyed by the Church, and many more allowed to perish throughout the centuries. Though this is the record of the Roman Church, the Byzantine was less unsympathetic. It permitted some scientific activity to be carried on at Constantinople without ecclesiastical interference. Moreover, the Greek manuscripts that were brought

from Alexandria to Constantinople in the seventh century were not destroyed, as the Roman Church might well have required, but were preserved, and played their part in the Renaissance.

Of the records of early science enough have survived to make it possible to trace its history in outline. The oldest relate to Babylonia, where astronomy was known in 2234 B.C.; and the practice of astronomy implies a knowledge of mathematics and the use of scientific instruments. From Babylon astronomy is believed to have been carried to ancient Egypt. But it was not until 500 B.C. that science made any substantial advance. About that time there grew up in Ionian Greece a faculty for scientific study which had never been equalled. Some of the best-known names in science belong to this age. How the local conditions were propitious for this development cannot easily be said, but it is perhaps significant that the period was contemporary with the production in near-by Macedonia of one of the greatest military leaders, Alexander the Great, and his life work stimulated a great part of the known world.

Already in the sixth century B.C. the Greeks knew something about science, more especially as the outcome of the work of Pythagoras and his followers. Mathematics was created by them as a science,

together with a system of plane geometry. They were acquainted with the elements of physics, astronomy, and geography. They even knew that the earth was round, and that it rotated about its axis—ideas which were fated to be lost for many centuries. In the fifth century B.C. geometry was developed rapidly by the Greeks, and the earliest text-book of geometry written. Scientific medicine was created by them, and for the first time diseases were held not to be sent by the gods as a punishment of mankind. The bodies of animals but not of human beings were used for dissection.

All this intellectual activity centred at Athens, and owed its inception to the philosopher Socrates (470-399). He it was who first taught that the proper study of mankind is man, and in consequence directed man's attention to his own conditions of life. Following him was his pupil, the great Plato (427-347), who founded a school in the Academy at Athens. Science itself was not as yet dealt with on other than philosophical lines: philosophy and science were mixed until Aristotle (384-322) separated them. He had been tutor to Alexander the Great when the latter was a young prince. He joined Plato's school for a time, but left it because of its philosophizing. He had no sympathy with either philosophical or mystical speculation, and he set up

at Athens a Lyceum where science might be cultivated. Aristotle was the first to practise the scientific method of experiment as it is known to us; and he created the sciences of zoology and comparative anatomy. But within a generation of his death these sciences substantially disappeared from the Greek world. No advance on his *History of Animals* was made for just two thousand years, when Linnæus in 1757 published his *Systema Naturæ*.

When King Alexander died, Greece lost first her political importance and then her intellectual leadership. The latter passed to Alexandria, the new capital city of Egypt, which Alexander had founded and to which his body was brought for burial. It is here that the history of science is focussed during the next two or three centuries. The Alexandrian school was modelled on Aristotle's, and became famous in respect of every science. Mathematics made extraordinary progress—Euclid belongs to this time—and the foundations of trigonometry were laid. Astronomy was notably advanced: the tides were correctly explained, their dependence on the moon determined. In physics Archimedes discovered specific gravity, and settled the fundamental principles of hydrostatics. Geography was greatly expanded, no doubt partly as a result of Alexander's expeditions. A medical school was

founded, and about 300 B.C. anatomy and physiology were studied scientifically. The age-old prejudice against dissecting human bodies was overcome, perhaps the more readily in a country which was familiar with the practice of embalming, and anatomical and physiological discoveries of the first importance followed. These included the exact anatomy of the heart, and the distinction between sensory and motor nerves. This latter discovery, it may be noted, came to be lost until it was remade by Charles Bell of Edinburgh early last century. Pathological anatomy was established by regular post-mortem examinations.

This period of original research continued only until about the second century B.C. Thereafter scientific activity gradually ceased at Alexandria, and was not taken up elsewhere. Why this decay should have set in has never been exactly known, though it should be remembered that Egypt passed under Roman guardianship in 51 B.C., and the Romans had a mean opinion of pure science. They produced nothing original themselves, but borrowed what they needed from the Greeks. Celsus, for example, was a Roman and he wrote the best scientific work of the time, but he was content in the main to reproduce the Greek originals. Moreover, when the Alexandrian Library was destroyed, the output

of science for several centuries was lost, including the Greek works on biology. Finally, in the early third century A.D., Christianity became the official religion of the Roman Empire, and remained the leading influence in Europe for many centuries. Throughout all this time the Christian religious outlook proved to be not at all the scientific outlook, and science languished utterly. For nearly 1500 years the scientific spirit ceased to live, superstition and magic serving in place of it.

The religious respect for tradition seems to have affected science also, and the scientific writings and practices of the time show almost exclusively an uncritical regard for the works of the ancients, and no attempt to improve upon them. This accounts for the extraordinary veneration for the teachings of Galen all through the Middle Ages. Galen was a leading Roman physician in the second century A.D., and the most voluminous of all ancient scientific writers : he wrote 150 medical works, and 80 of them survive. In these he collected the conventional material of his predecessors, adding a little by way of original research. His views on physiology were accepted everywhere until the time of Harvey and later, and his account of human anatomy was current for 1500 years, as were his ideas about the physical structure of living things. A very great number of

all these is erroneous, and yet no one presumed to criticize him; a kind of sanctity became attached to his statements as more and more tradition gathered behind them. Why Galen's works on science should have survived when most others perished is explained by Professor C. Singer in his *Greek Biology and Greek Medicine* (1922) by the fact that his writings are strongly teleological; by emphasizing the evidences of an intelligent being working on an intelligent plan, they harmonized with Christian belief. Furthermore, only those of his books which are teleological seem to have been allowed to be studied; the others, though they are the best scientifically, were known hardly at all during the Middle Ages.

Little can be said of the state of science throughout that long period of intellectual torpor to which history has given the name of the Dark Ages—approximately from the fall of the Roman Empire in 476 to about 1200. The only gleam of scientific light was in Spain under the Moors. It will be remembered that the Moors brought with them Arabic translations of many Greek manuscripts, and that these came to be translated into Latin during the Moorish domination of Spain. The only link, therefore, between ancient science and the learning of the Middle Ages was a non-Christian one.

Of the various studies promoted by the Moors, the most notable was the medical application of botany, especially in the Arabic universities of Toledo and Cordova. This interest in plants spread widely through Europe, and led to the publication of many herbals—descriptive and often illustrated books about herbs. The earliest of these date from the beginning of the sixteenth century.

We come now to the close of the Middle Ages and the beginning of the period of intellectual activity which has continued to the present time. The transition is generally attributed to the Turkish conquest of Constantinople in 1453. This caused many scholars in Constantinople to flee westwards; and they brought with them numerous Greek manuscripts which until then had been unknown in Europe. These were the manuscripts which had been carried to Constantinople by scholars from Alexandria, when the Arabs, under the caliph Omar, came into Egypt in the seventh century. Most of the fugitives from Constantinople settled in Italy, where their coming soon stirred a fervour of interest in Greek science. It is to this rebirth of the old Greek knowledge that has been given the name of the Renaissance. Notably in Florence a Platonic Academy was founded under the patronage of Cosmo de Medici: lectures were given there on the

"new" learning, and scholars were attracted from most parts of Europe. A contemporary discovery, which did much to help the movement, was the invention of printing in 1493.

In our own country the first scientific fruit of the Renaissance is attributable to the action of Henry VIII, when in 1518 he founded the still existing College of Physicians of London. This he did at the instance of his physician, Thomas Linacre, a priest and scholar who in his earlier days had been imbued with the new learning at the Florentine Academy. Until then the control of medicine and the training of physicians were among the many functions reserved to the Church. The licensing of a physician was the prerogative of the bishop of the diocese, and a candidate's religious orthodoxy altogether outweighed his scientific ability. By establishing the College, Henry gave the first foothold in this country to science freed from theological domination. Within less than a century the College produced William Harvey, whose experimental discoveries placed human physiology on its modern basis.

On the Continent the revival of science received a very great impulse by the publication of two books which happened to appear together in 1543 —just ninety years after the immigration from Constantinople. One of them has already been

referred to, and was by the Polish monk Copernicus, *On the Motions of the Heavenly Bodies* : the other was by Vesalius, *The Fabric of the Human Body*. Copernicus showed, partly by astronomical observations but chiefly by study, that the long-established orthodox view that the sun revolved round the earth was erroneous, and that the earth, in fact, moved round the sun. His book became the starting-point of all that has grown to be modern astronomy. Vesalius, born of an English mother in Brussels, then in the duchy of Brabant, studied medicine in Paris, and when only twenty-one was appointed a professor to teach anatomy at Padua University. It was his achievement to have established human anatomy as a science. This he did with remarkable originality by submitting the hoary teachings of Galen to the test of the actual dissection of human bodies; and he proved them to be in the main false. His book on anatomy opened the road to all the modern medical sciences.

Later in the sixteenth century (1564) was born Galileo. His discoveries during a long life did more than those of any contemporary in advancing science. In his earliest work—it remained unprinted for 250 years—he dealt on original lines with the rate of acceleration of falling bodies, using the leaning tower of Pisa to demonstrate his theory. He

invented both the telescope and the microscope—the two instruments which were destined to extend the range of human observation to the remotest quarters of the heavens, and to the minutest details of animal and physical structure. His own interest lay with the telescope, and with it he detected many “new” stars, the mountains on the “smooth” surface of the moon, and Jupiter’s four satellites. But his discoveries went perilously counter to the teaching which the Church propounded, as did much of his later work, and in 1632, following on his *Dialogue* on the Ptolemaic and Copernican systems, the Holy Office moved against him. A personal interview with the Pope failed to help him. The Jesuits secured the prohibition of the sale of the book, and Galileo himself was imprisoned in the Castle of St. Angelo at Rome until he should abjure his heresy in affirming that the earth moved round the sun, and not the sun round the earth. For three days the old man was shut up in the Inquisition’s torture chamber. What happened there has never been disclosed, but at the end he recanted, and he admitted his heresy before an assembly of cardinals and prelates.

It seems evident that Galileo’s discoveries grew directly out of those of his two predecessors. The scientific interest kindled by the work of Copernicus

and Vesalius must have made the need felt for aids to human vision in exploring both the sky and man himself; and within a couple of generations Galileo's genius responded by his double invention. The telescope and the microscope, as we know, have conducted man's inquisitive eyes far along the only two paths open to them. These alternative directions of inquiry have never ceased to interest scientists, and are still to be recognized under their biological names of external and internal environments. The paths have come to diverge so widely that few scientists can have their interest in both directions, in astronomy and in medicine and biology. Most often an outstanding knowledge of the one goes with little more than a smattering of the other. Even Galileo left his invention of the microscope for others to use, and Malpighi was the first to apply it to discover the minute structure of animal tissues.

Another memorable discovery of the seventeenth century—the early part of it—was the circulation of the blood. This was the work of William Harvey, a Folkestone-born man who had studied at Padua under a successor of Vesalius in the chair of anatomy. Returning to England he spent many years devising and carrying out experiments on the hearts of different animals, and succeeded in solving a problem

which had eluded everyone. In April 1616—as it happened, the week before Shakespeare died—he lectured on his discoveries before the College of Physicians of London. His researches laid the foundation of modern physiology.

About the same time the laws governing planetary motions were formulated by Johann Kepler. Henceforth the age-old mystery of their movements yielded to the scientific explanation of them in terms of forces and natural law. In 1687 Isaac Newton showed in his *Principia* that the forces of gravity which Kepler had demonstrated in the heavens, operated also on the earth, that is, that heavens and earth are part of one and the same system.

Meanwhile the position of science in this country had become well enough established for Charles II in 1662 to found the Royal Society. This was the first institution here for the advancement of science. It was set up to "encourage philosophical studies, especially those which by actual experiments attempt either to shape out a new philosophy or to perfect the old." The Society has since led scientific progress, and remains today the foremost body of the sort.

Though the outstanding advances which have just been passed in review belonging to the seventeenth century were few, they led in the eighteenth to a

quickened interest in physics, chemistry, anatomy, and physiology; and many important discoveries were made. A new development of science began in the latter half of the eighteenth century, when the Swedish naturalist Linnæus published his *Systema Naturæ*, in which he effected the first classification of animals and plants. As we have seen, his was the first work on zoology in 2000 years. By showing that an order was traceable through all living things from man downwards, it supplied the first of a long train of evidence against the false disjunction of man and other animals as taught by the Churches.

The nineteenth century was distinguished by advances following on Linnæus's lead in biology, especially Darwin's work on the origin of species, and Weismann's on heredity. Darwin showed that new species, both animal and plant, are variations of earlier ones, and these of still earlier; and therefore that all living things are related to each other, expressions of the same natural process. Further, by proving man's animal descent he identified him as a part of the same whole, that is, that plants, animals and man belong to one and the same system.

Since Darwin geological research has notably advanced. It has established beyond any reasonable doubt that, during the course of at least many millions of years, life began—first aquatic, then

terrestrial—and a succession of new species appeared, the number of them multiplying, and their structure becoming more complex. Mammals are the most recent among them, and man the most recent of the mammals. The bearing of all this on the Christian cosmogony set out in Genesis will be referred to later.

The factors involved in heredity were studied by Weismann; and he succeeded in establishing, contrary to general opinion, that living things do not die, but that life is uninterruptedly transmitted from one generation to another by means of the germ-plasm, a microscopical element in the sex glands. This applies to man and all other forms of life. Towards the latter part of the nineteenth century the recognition of bacteria as the cause of most of the chief human diseases gave medicine a great impetus, and made public health a practical issue.

Hitherto, the sequence of investigation has been first an interest in human anatomy, and later an interest in human physiology. In the twentieth century this has advanced a stage further, and for the first time human psychology has become a subject of research. Its beginnings date from the nineteenth century or even earlier, but at that time they were largely philosophical speculations, and not scientific. The later part of the nineteenth century saw the first investigation of both child

psychology and animal psychology, and the foundations laid of abnormal psychology, more especially of insanity. Further, physiological experimentation was used to elucidate psychological processes, and was of some value; but it did little by way of unravelling the complexities of human behaviour, or explaining them on the lines which are considered indispensable in other sciences. Not all these branches of psychology together were of any real help, either in everyday life or in medical work. Professor F. C. Flügel's comment, in his recent *Hundred Years of Psychology*, is that they were useless alike to the historian, the sociologist, the anthropologist, and the economist.

The problems of human psychology are now in process of solution since the discovery of psychoanalysis by Freud. This is the newest development of science; and is the first to succeed in explaining and understanding human behaviour scientifically. Unlike earlier attempts to the same end, psychoanalysis utilizes the scientific method of observation and experiment, employing it to study the phenomena of the mind. It also makes use of the same conception of dynamic forces which has proved so productive in all the older sciences—in physics and chemistry, astronomy and mathematics, anatomy and physiology—applying it to the processes of the

mind with similarly fruitful results. It has shown that evolution and development are found also in psychology, and that psychological growth from birth to maturity follows a regular course.

Finally, psycho-analysis has had courage enough to concern itself with what is probably the most intimate aspect of human nature—sex. In psycho-analysis, for the first time in the history of either Christianity or science, the subject of sex is treated dispassionately, scientifically. Christianity has had little or nothing to say about it, except indeed that it should be shunned as an unclean thing. Science, too, has eschewed it. Even the text-books of human physiology—written for future medical men—neglect it; they touch summarily on its anatomy and physiology, and leave out its important psychological aspects entirely.

CHAPTER IV

MAGIC

STILL keeping in mind that our aim is to apply modern psychology to religion, we cannot dispense with some preliminary knowledge of the facts relating to magic. Magic, of course, is neither religion nor science, though very often found in association with each of them. In the matter of its historical records we have very little to rely on: there has never been a Church of Magic. Moreover, it is a side of human nature which for several centuries has appealed to the less intelligent, and they are unlikely to have left any written accounts of their practices. Nevertheless, enough is known to justify the conclusion that magic, like religion and science, is widespread—how widespread we shall see in a moment. So far as the records of its occurrence go, it can safely be said that it was used by most, if not all ancient races, while at the present day it is found among savage tribes: in fact, according to Professor Malinowski, no people however primitive is without it.

Magic finds expression especially in rites and

spells. These are commonly carried out by acting the performance which it is desired to bring about. For example, if the wish is to injure someone, the magician points a dagger in his direction, and at the same time displays emotion appropriate to the act of killing. The uses to which magic is put are innumerable, and only a few need be mentioned here. Among many tribes, if an enemy's nail parings can be got possession of and burnt, he too will come to destruction. Until comparatively recently in Scotland, it was a custom, when wanting to harm someone, to make a small clay model of him and lay it in the bed of a stream; as the figure was gradually washed away, so would the enemy's health be sapped. The almost universal practice of rain-making at times of drought is another example. Here the magic consists in pouring water over some of the parched ground, in the belief that this action will induce the rain to fall. Lastly may be instanced the wearing of amulets, in order to ward off disease or some other evil influence.

In opposition to the black magic which seeks to harm another, there is the equally prevalent white magic, a kind of counter-magic which is used to antagonize the black. This dualism of magic is of special interest in connection with many other expressions of human activity, which show a two-

fold positive and negative aspect. Finally, it should be noted that magic and all pertaining to it are regarded as sacred. In this it is like religion, but unlike primitive science, which seems never to be placed in this category.

Next we need to realize that magic is by no means restricted to savage life. On the contrary, it is widespread in all modern civilizations, even the most advanced. The commonest expression of it is superstitiousness, especially the belief in luck, good or bad. Certain actions, it is believed, will bring good luck, certain others will forfeit it or bring bad luck; and the superstitious feel that it is possible either to ward off harm or to provoke it. Everyday examples are the wearing of charms and amulets, the use of mascots, and the belief in the luck-determining properties of black cats, the number thirteen, spilled salt, broken mirrors, and so on. Magic is also evident in curses and blessings, since they intend the ill fortune or the good of another. Even the use of love philtres is not extinct in this country.

Again, the children of present-day civilized communities normally pass through a stage in their early development when they believe in magic. In fact a good deal of their behaviour expresses this innate belief. In this they resemble the present-

day adult savage, but with this difference, that they largely outgrow the stage, as a savage never does.

Even among adults in modern civilized life, magic is to be found in all classes. No degree of intelligence, education, or wealth is incompatible with it. Interestingly enough, many who yield to the urge to carry out a magical action feel an undoubted measure of mental relief as a result; while others who resist the impulse, do so at the cost of an equally certain amount of mental inquietude. This would go to show that, irrational though magic is, the indulgence of it does satisfy some pretty deep kind of feeling.

The precise nature of magic has been a puzzle to many. Our present understanding of it we owe largely to Frazer, Malinowski, and Ferenczi. It would seem that all magic represents the belief that we are able, by the use of it, to affect the course of events in the outside world. More exactly, that our thoughts and wishes, as expressed in magical actions, can influence the natural world around us. Magic is founded, says Malinowski, on the belief that hope cannot fail nor desire deceive. Studying it psycho-analytically, Ferenczi showed that it originates in that very early stage of child development which he named "omnipotence of thought."

This is the stage when a very young child, not yet having acquired experience of the world around it, never doubts that its own thoughts and wishes are effective in ordering the outside world. This very important infantile characteristic will be considered fully in a later chapter. For the present it may be noted that not only little children hold the belief: adolescents often believe that by wishing something very hard indeed, they are all the more likely to bring it about, and even some adults have not outgrown this belief.

In sum, magic belongs to that important psychological category of imagination or fantasy, and this, too, will be reserved for consideration later. Meanwhile it will be enough to explain it only very briefly. Magic is concerned with our own wishes and desires, and when we learn by experience that the world is none too kindly disposed to satisfy them, we can fall back on the comfort that magic gives, by assuring ourselves that our desires are powerful enough to make the world conform to them. So prevalent is the practice that it may be safely said that everyone has indulged in it at some time or other, if only on occasions of emotional stress. Further, bearing in mind the two previous chapters, we have good grounds for inferring that human nature normally includes the three impulses which are expressed in

religion, in science, and in magic. All of these are to be met with in every race and every individual, and it will be well to remember this later, when we are trying to understand the relations and the conflicts between them.

This threefold constitution of human nature is a conclusion of the first importance, and its psychological implications will be taken up in the concluding chapters. For the present, the fact may be established that any two of these impulses may be found associated in individuals and in human interests—religious and scientific, religious and magical, scientific and magical.

To look first for evidence of the association of the religious and scientific impulses, it will be recognized that no one is so religious as to be altogether non-scientific, or so scientific as to be wholly non-religious. Even the most devout religionist has something of the scientific in him, else he would be unable, for example, to devise a means of stopping a draughty window, or smoothing his hair when he has mislaid his hair-brushes. Equally most scientists have something of the religious in them, as witness their attendance at church, if only now and again, or maybe their inclination to pray to God when in special difficulty. Experience shows practically every gradation of temperament between the de-

voutly religious at the one end and the sceptically scientific at the other. Further, it would seem that the more strongly the religious side has developed, the weaker will be the scientific; and, as is well known, the very devout may grow so unpractical and unworldly that even their creature needs become of small account to them. Similarly, the more the scientific sense is developed, the less will be the religious, until the thorough scientist may have no use for religion, and even be an atheist.

Next, to recognize the association of religion with magic. Many instances of this might be cited. Magic is especially obvious in religious ritual, since this is based on the belief of the religious celebrant that his ritual actions possess the power of altering the outside world. This belief is seen in many religious ceremonies, from that in which the priest sprinkles holy water over the people to the dread act of excommunication, which is supposed to have the power of determining even the future life of an offender. Another religious example is found in the use of church bells. These were originally rung, not, as many suppose, as a summons to service, but to scare away the Devil while folk were on the way to church. A special instance of this is the "passing bell," which was tolled when anyone was dying:

this was to frighten away the evil spirits waiting to pounce on the soul while it was "passing" from the body. Again, as recently as 1852 the Bishop of Malta ordered the church bells to be rung for an hour to allay a gale of wind.

Magic can be recognized hardly if at all less frequently in connection with science. It was a very large element in the old alchemy, which sought to transmute baser metals into gold. As the magical side of it came to be replaced by the scientific, alchemy grew into chemistry. Again, astrology included very much that was magical, until its scientific elements gradually converted it into astronomy. Until a century or two ago astrological notions were widely prevalent in medicine, and illnesses were believed to be influenced by the phases of the moon, by tides and eclipses. In a book on children's diseases published in 1697, the danger is expressly urged of weaning a child when the moon is on the wane: the safest times are the waxing of the spring and autumn moons. Other medical associations of magic are the use of charms and spells to cure illness—this still survives among us, and not only in country parts—and the cure of mental disorders, for which the only treatment throughout the centuries was the magic of exorcisers. Indeed, so recently has medicine become scientific that many

of the laity still expect doctors to effect cures by some magical process.

In conclusion, it may be said of the relations between magic and science, that magic came before science, and that individuals, communities, and even States believed in it, and relied on it in settling their affairs, at a stage when scientific knowledge was still lacking—just as children do at the present day. But as civilization has advanced, and science with it, magic has come to be replaced by science as a means of controlling the natural world.

CHAPTER V

SCIENCE AND FREE-THOUGHT UNDER CHRISTIANITY

THE brief historical outline with which we have been occupied was indispensable, if we are to understand the influence of religion and science on each other. History is invaluable in showing the way in which a present situation has been reached. It is also one of the most reliable guides to the future, by indicating the direction in which things are moving. Only by studying the past are we able to profit by its experience, and the story which history has to tell will furnish at least some broad ideas about the present and the future.

In approaching the subject of the reciprocal effects of religion and science we need to recognize that it has two sides, first how science has fared under Christianity, and secondly how Christianity has been affected by the rise of modern science. The former we shall now consider, leaving the latter to be the subject of the next chapter. Any investigation of the effect of religion on science must necessarily be restricted to Christianity, since it alone of the

great religions seems to have provided the opportunity for the growth of science. The only exception to this might be Islam, which in bygone centuries showed itself in some measure favourable to science, but not in recent times.

When we compare the histories of Christianity and science, we are struck by an apparent relationship between them. As the influence of one rises, that of the other falls. Also the period of the full development of the one coincides with the period of the practical extinction of the other. Throughout the centuries when the ascendancy of Christianity was at its highest, scientific research ceased. Not only science but every other kind of intellectual culture suffered. It would seem that all the energizing power of European civilization was attracted into the one channel of religion, and that little or none was left over for cultural purposes. Hence it is that the period in history which is commonly known as the Dark Ages is spoken of by some as the Latin Renaissance, the time of the finest flowering of the spirit of religion. So much depends on the point of view.

Not until the Renaissance did intellectual activity begin to stir. From that time the authority of the Church began to fail. This decline has continued to the present day, at first slowly, then faster, until

recent decades when it has become rapid. Contemporaneously, modern science has extended its influence. If a graph was prepared to show the relative vigour of Christianity and of science from the sixteenth century until now, it would be seen not only that as the one falls the other rises, but that the steeper the fall of the one, the steeper the rise of the other. All this suggests the possibility that there may be something in religion and in science which do not accord, a something contradictory, if not incompatible.

Now to examine in more detail the part played by Christianity in the history of science. And, since science can exist only under the condition of freedom of thought, we must acquaint ourselves also with the Church's attitude to this larger issue.

We recall that science was already in poor plight during the two or three centuries before Christianity. No scientific research had been carried on since that in the Alexandrian schools, and they, as we have seen, had fallen into decay when they came under Roman governance. Christianity could have had no responsibility for this, whatever the attitude of the Roman Catholic Church to science later proved to be. Another non-Christian influence which can hardly have failed to check culture of every kind was the barbarian inroads into Italy between the

fourth and sixth centuries, after the government of the Empire had been moved to Byzantium. Nevertheless, this effect can only have been temporary, and the barbarians cannot be held accountable for the subsequent fate that was in store for science.

Records enough survive from the first centuries, when Christianity was coming into its own, to show the attitude of the Church to non-Christian activities. From the outset it took no interest in secular education of any kind. In its early days there were, J. M. Robertson tells us in his *Short History of Christianity*, still grammar schools in every considerable town of Europe, and many higher schools in the great cities; but the Church gradually let them die out. It did not even attempt a Christian system of education beyond a few theological seminaries, and in the opening years of the fifth century all public lectures were forbidden by Theodosius II. Soon afterwards the schools of law and philosophy at Athens were suppressed by Justinian and their teachers banished. This put an end to the last vestige of intellectual life. Both Eastern and Western Churches banned the reading of the Bible by the laity; and the only interpretation of it to be permitted was that laid down by the Church. From this time on, for more than seven hundred years, there followed the Dark Ages.

The Church denounced all the scientific truths of the ancients, and even from its early days treated science as synonymous with heresy. As Christianity developed, the belief grew up that all vital knowledge was contained within the Church. The genuineness of this conviction need not be questioned, whatever its practical results may have been, and it would be only wise to accept the teaching of history and recognize this exclusiveness as inevitably inherent in the religious mentality. It followed that not only science went without valuation, but the arts of sculpture and painting fell into low regard, and literature was not in much better case. Religion held the field alone, and as the Pope's authority came to spread over nearly all the countries of Europe, his word decided the religious belief of millions. To enforce this authority the Church created and used two terrible weapons. It invented the dogma that error of belief doomed man to eternal torment. It instituted the secret confessional, which gave it a power over mankind that has never been equalled. By these means it crushed utterly all freedom of thought, including scientific inquiry, and compelled everyone, high or low, to accept the Catholic faith. The dread penalty for any who questioned the papal authority was excommunication from all seven sacraments. Even this

failed to satisfy religious zeal, and finally the Church made heresy punishable by death.

Before coming to the persecution of heretics, we may refer to two subjects which illustrate the Church's attitude to non-religious culture. A sidelight on its disregard of secular education—and the slow and difficult recovery of it—is provided by the following summary relating to the establishment of universities. After 529, when the Athenian schools were suppressed, nearly six centuries passed before the first of the universities struggled into existence.

In the 11th cent. 1 university was founded.

..	12th	..	5	universities	were	..	(including	Oxford
..	13th	..	15	..	..	..	and Paris).	
..	14th	..	24	..	..	..	(including	Cam-
..	15th	..	35	..	..	..	Andrews,	bridge).
.	.	.	.	.	.	.	Glasgow,	
.	.	.	.	.	.	.	Aberdeen,	
.	.	.	.	.	.	.	and	
.	.	.	.	.	.	.	also three in the	
.	.	.	.	.	.	.	opening years of	
.	.	.	.	.	.	.	the sixteenth	
.	.	.	.	.	.	.	century).	

After the fifteenth century the numbers kept low until the nineteenth when 58 were established.

Medicine is another non-religious interest which suffered at the hands of the Church. It had gone far under pagan auspices, and municipal physicians had been provided throughout the Empire by

Antoninus Pius. But under Christianity the schools of healing were closed with the other schools. The Church regarded disease as sent by God, and preferred to deal with it by prayer and exorcism, with the result that medicine as a science virtually died out. Even bodily cleanliness, which had counted for so much among the Romans with their many baths, private and public, became neglected. In Britain, as elsewhere, all but the poorest Roman houses had their own baths, more elaborate than our own, and suggesting rather our Turkish baths. But after the fall of the Empire towns built without baths became the mark of the Christian period. Physical dirtiness and squalor of life, individual and communal, became something of a Christian virtue; and not for many centuries did the sanitary value of cleanliness become recognized.

That Christianity should have been so little concerned about the elements of hygiene may seem surprising at first sight, but on reflection it will be seen that no other attitude could be expected of it. Those who are religious-minded keep their eyes fixed on a future life: they are unable to attach any commensurable importance to the transient conditions of the present life. The Church never has been and never can be specially interested in mundane welfare. When, moreover, a part of its accepted

creed is that bodily afflictions are God-sent, the only consistent attitude of the devout is to accept them with resignation. In a God-created world in which everything is for the best, to attempt to change its conditions, including dirt, insanitation, and disease, could only be impious.

To resume the account of the Church's intolerance of unorthodoxy and free-thought, and its punishment of heresy by death. The Roman Church first resorted to the general and systematic slaughter of heretics in the eleventh century. In the early thirteenth all previous massacres were outdone in Innocent III's persecution of the Albigenses. At the storming of one of their towns in the first campaign, 15,000 men, women, and children were claimed by the papal legate to have been killed. This was the occasion of the legate's historic reply, when asked how believers might be distinguished from heretics, "Kill all. God will know His own." Perhaps the bloodiest instance of the suppression of heresy is that in Mexico and Peru in the sixteenth century, when, according to the estimate of the Spanish priest Las Casas, twelve million natives were killed as heretics.

A few years after the Albigensian campaign the Inquisition was founded in Spain (1236). Its function was to detect heresy. Soon afterwards torture

was authorized as a means of extracting evidence or recantation. The Inquisition spread over most of Europe, and later to America. It existed for a short time in England under Queen Mary. One of its duties was to destroy heretical books; and in a single *auto-da-fé* at Salamanca towards the end of the fifteenth century several thousand volumes were burned as heretical. Its success in this connection was very great for a long time; but came to be gravely interfered with by a scientific discovery—that of printing. The Inquisition survived last in Catholic Spain until 1835, and the final execution to be carried out by it was in 1813.

In spite of these drastic and cruel measures—perhaps in part because of them—the Reformation and the Renaissance took shape in the sixteenth century. These movements had a good deal in common, and each of them was directed against the Church. In order to try to check them the Holy Office established in 1550 the *Index Expurgatorius*—a list of books which everyone was forbidden to read, together with a department for detecting heresy in books. The *Index* is still carried on at Rome, and the names of new books added to it from time to time. Another powerful attempt to maintain the Church's position was the institution in 1554 of the Jesuits, a body specially founded to combat the

Reformation. It was efficiently organized, and soon gained considerable political influence, which was all the greater because it was set to work secretly.

How did the Church proceed to employ its forces against the two progressive movements which threatened it? At the outset of the Reformation it promptly demanded the submission of its leader, Luther, and, on his refusing, excommunicated him (1521). In the ensuing years it took stringent measures against the reformist Anabaptist movement in Germany, and by 1535 had succeeded in suppressing it. This it did with the help of the methods of torture, burning, execution, and massacre. In 1530 it began the long persecution of French Protestants. This involved eight civil wars, and led in 1572 to the massacre of Huguenots on St. Bartholomew's Day. In the Netherlands Protestantism made great headway, and the Holy Office in 1568 responded by passing sentence of death on all its inhabitants as heretics. Further, the Church sought and employed the secular forces of Catholic countries to suppress the Protestant movement, especially those of Spain against Holland and England, and of France and Germany in the Thirty Years' War. When Henry VIII of England disavowed the papal jurisdiction, and declared himself

Head of the Church, the Pope replied by a bull of excommunication against him.

At that time the Renaissance appeared an altogether less portentous threat to the Church than the Reformation. Scientists were so few that they could be dealt with individually, both by placing their works on the Index and by punishing them as heretics. The Church had in no way modified its old attitude to science of regarding it as a form of heresy. The best-known instance of the punishment of scientific opinion as heresy is that of Giordano Bruno—an exponent of the new teaching of Copernicus—who was burned in 1600 for his unorthodoxy. It should be added that Bruno had not rested content with putting forward his scientific views, but had also allowed himself to indulge his anti-ecclesiastical feeling. Campanella, another scientist, was put in prison for twenty-seven years, and afterwards detained for three more by the Inquisition. Galileo, as we have seen, was imprisoned and tortured for denying that the sun moved round the earth. Two or three centuries before the Renaissance, Roger Bacon, an English monk whose writings marked him as a scientist far ahead of his time, was excommunicated and imprisoned till near his death at the age of eighty ; he was guilty of possessing diabolical knowledge, especially in connection with his chemical researches.

Copernicus himself withheld the publication of his discovery until he was an old man and on his death-bed.

Except for the instances just given, scientists at the time of the Renaissance appear not to have been punished. Regiomontanus's work was actually done under the patronage of a cardinal, and Tycho carried on his astronomical researches without attracting the Church's attention. At the same time the attitude of the Church itself was counter to science, and its influence was used to retard it, and never to advance it. It is not difficult to account for this. The Church demanded an unqualified acceptance of all its teachings, and these alone were to be accepted as true. It reserved to itself the interpretation not only of religious tradition, including the Bible, but also of matters outside religion, including the scientific investigation of the natural world. In both spheres its teachings were based on the traditional learning, which it had preserved and handed down from generation to generation. What had been decided by its ancient authorities was not to be doubted. No sanction whatever was given for the exercise of any individual judgment, or for any criticism of its doctrines. Everything was to be accepted unquestioningly. Thus it came about that the Roman Catholic Church was the

most iron dogmatism that the world has ever known.

All this, as we now see, implies an appeal to credulity and not to intelligence. It permits no opportunity for individual religious belief, let alone for free-thinking. And yet freedom of thought is the breath of life to science. Here in a sentence is surely the explanation of the hostile attitude of the Church to science. It could have been none other, for this difference between them is fundamental.

Since the early days of modern science the Roman Church has not abated its claim that beliefs must agree, not with facts but with religious dogma, and it has continued to resist practically every scientific discovery. The exceptions to this, interestingly enough, are those in mathematics, physics, and chemistry—sciences which do not trespass on the theological field. Also the Church that had opposed man's applying his scientific understanding to either the heavens or himself, acquiesced in his scientific knowledge of his terrestrial surroundings. It had nothing to say against his scientific skill in matters like agriculture, textiles, mining, architecture, ship-building; and availed itself of discoveries and innovations in connection with them. This inconsistent attitude is not easy to explain, unless it is that these mundane interests existed when Christianity began,

and were accepted by it as part of the existing scheme of things, while its essential conservatism set it against any later new branch of knowledge, especially of celestial conditions which it claimed as its prerogative.

Where advances in science have conflicted with religious teaching, Christianity has shown what seems to be an almost instinctive antipathy; and this applies to the Protestant Churches as well as to the Catholic. The most outstanding instance of this was in the middle of last century, when Darwin published his work on the origin of species and the descent of man. The Catholic Church placed his books on the Index, where they still remain, the reading of them forbidden to its followers. The Church of England attacked them violently and bitterly. Darwin's work assailed what was regarded by Christians as a vital part of the religious position. Christianity had firmly held to the story of the creation of the world as given in the Book of Genesis, but Darwin's theory of evolution accorded altogether better with the new facts of biology. His work, viewed now from this distance of time of nearly three-quarters of a century, seems to be the heaviest blow to Christian belief since the Renaissance. With this in mind, can it be only a coincidence that within little more than a decade after the *Origin of*

Species was published, the Roman Church proceeded to demand more obedience than ever before, and carried its claim to authority to the ultimate stage? At a Vatican Council in 1870, a declaration was made of papal infallibility, that is, the dogma that the Pope speaking *ex cathedra* is free from error. Supplied with this new and final augmentation of his authority, the Pope henceforth has only to declare his disagreement with any matter or subject whatsoever, including discoveries in science, for it to be banned as false. Was ever such power placed in the hands of mortal man?

Incidentally, this question of infallibility had been under consideration by the Papacy since the Middle Ages. At that time the claim had been put forward by it, and the attempt made to support it by forging the Isidorian decretals; but until last century it was never dogmatically asserted. Even then, it is interesting to know, it was agreed to by the Vatican Council only by a majority vote.

It has just been said that Protestantism, like Catholicism, shows itself hostile to science. This is well exemplified in the universities of Protestant countries, including our own older universities, where the theological antipathy to science has been and is general. It is seen again in the control of education by ecclesiastical headmasters, and their slowly

yielding opposition to the introduction of science teaching in schools. In this country also, until a hundred years ago, the Church of England was successful, under the Test and Corporation Acts, in excluding all except members of its own Church from every public office and appointment, including parliament. Until a couple of generations ago, none but members of the same Church were admitted as undergraduates at Oxford or Cambridge. These measures of intolerance were aimed primarily against nonconformists and papists, but were by so much the more effective in shutting out scientists, who were agnostics or atheists, from every position of authority and influence.

A further trait shared by both Catholic and Protestant Churches has been to restrain science, whatever other directions its activities may take, from applying itself to the study of religions or of the history of Christianity. Only within quite recent years has the scientific method begun to be turned to these subjects, with results which will be considered later. The Churches had for long successfully protected themselves from extraneous criticism of this kind by the help of the ecclesiastical courts. Since these were administered by clerics, but had jurisdiction over laymen for spiritual offences, they were a useful means of stopping the

expression of unorthodox views. The legal offence of blasphemy gave further power of the same sort. When it is recalled that blasphemy covers the very wide ground of using any language reviling or bringing into contempt God, the Bible, or Christianity in general, the effectiveness of the law will be realized in checking almost every kind of criticism of religious matters, including any scientific study of them. Blasphemy is no longer treated as an ecclesiastical offence, as in the Middle Ages, but is now a common law misdemeanour; and happily it can be added, as an indication of the growing tolerance of general opinion, that since a House of Lords decision in 1917 it is an offence only where accompanied by scurrility and indecency.

In conclusion, the facts set out in this chapter leave no ground for doubt that Christianity has consistently regarded science and free-thought as incompatible with its own principles. Since the Renaissance, its attitude to science has not merely lacked sympathy, but been actively and sometimes vigorously antagonistic; and this is true of both Protestant and Roman Churches. Today, though the Churches have largely lost their power of controlling science, they continue to exert what influence remains to them in opposition to it. With the modern Churches striving as they do to preserve

almost intact the old-time beliefs of Christianity, it is impossible that they should view the advances of modern science with anything but disfavour; but they are no longer able to do more than delay its progress.

CHAPTER VI

CHRISTIANITY AS AFFECTED BY SCIENCE

NEXT to consider the other side of our subject—how Christianity has been influenced by the rise of modern science. Until the Renaissance all the scientific knowledge that was used in everyday life was obtained from the ancients, especially Aristotle and Galen. Their teachings were so highly regarded that they had long since come to be accepted as a tradition. It would seem that the Church's deep respect for tradition in matters religious had spread also to matters intellectual, and the scientific writings of certain of the ancients were held in something of the veneration that was given to the Bible. The Church approved and sanctioned them; and some of the ablest religious writers had been at special pains to bring Aristotle's philosophy into harmony with Christian belief. In this way the science of the ancients, such as it was, became interwoven with orthodox theology, being invested both with the great authority of the Church, and also with not a little of the sanctity that attached to religious

dogmas. It was not permitted to criticize Aristotle, Galen, and the others, let alone to alter them; and yet, as we now know, much that they wrote is inaccurate or false. It can safely be said of all the centuries of the pre-Renaissance, that science and the spirit of science as we understand it was without any recognizable influence on religion. The position was the reverse: science was entirely controlled by the Church, and only those aspects of it which accorded with religious belief were tolerated.

Not until the Renaissance—less than 400 years ago—did the hard shell of Christian dogma become penetrable by scientific research. The two first steps in the process were taken, as we have seen, in 1543 by Copernicus in his work on astronomy, and by Vesalius in his book on anatomy. The discoveries of these two proved to be the first successful challenges to the Church's religious authority, and the way in which this came about is of particular interest. In the subject of astronomy the Church had taught that God, creating man as the noblest of his works, had set him on a world which was the centre of the universe, with sun, planets, and stars in daily motion round it. But Copernicus's discovery, an earth revolving round the sun, was a conception of quite another kind: it could only detract seriously from the sense of special favour shown to mankind

by God, and it was an idea altogether less flattering to man's self-esteem. Most important of all, it was the first proof that the Church was fallible, and that its teaching could be untrue. The disturbing effect of this was profound and widespread among the many who were chafing at the tyranny of the Church's methods.

The blow to ecclesiastical authority was a very heavy one for the following reason. The Church had taken over from Aristotle the idea that the earth was the centre of the universe; and, as we have just seen, Aristotle's teaching had become inseparably mixed with Church doctrine. The whole system of Scholastic Philosophy, to which the Church had given its support—especially since the work of its chief exponent three centuries before, the great St. Thomas Aquinas—was essentially Aristotle's philosophy. And now Copernicus had proved one of Aristotle's elemental assumptions to be false. The question, therefore, that shaped itself in every sceptical mind was, How much more of Aristotle's teaching might not be false, and also of the Scholastic Philosophy, and even of Christian beliefs themselves? The ferment of criticism and disbelief that was thus started has continued with increasing energy to the present day in the form of scientific inquiry.

The work of Vesalius was hardly less damaging.

Here again it was a case of the Church compromising its authority by having lent it to teachings which were now shown to be false. Galen was the teacher in question. His books on medical science had not only been accepted for many centuries by the Church, but had been raised by it to a position of infallibility where no criticism of them was permitted. Moreover, the Church had for long forbidden human dissections, and for nearly two hundred and fifty years, since a bull of Boniface VIII, to dissect a human corpse was an offence punishable by excommunication. Nevertheless, Vesalius performed human dissections himself; and he found that Galen's anatomical descriptions were inaccurate, some of them even grotesquely so. It was these discoveries that he published in his *Fabric of the Human Body*, with the result of impairing still further the Church's reputation for infallibility. Once again men's minds received a strong incentive to think independently, and not to accept credulously any longer whatever a plainly fallible Church might utter.

Parenthetically, the Church's disapproval of human dissection provides a curious sidelight on religious sentiment. The offence seems to have been regarded by it with peculiar horror, and on the ground that it violated the sanctity with which the Church endowed a human body. Vesalius was able to defy its

orders because he owed his professorial position at Padua University to the Venetian authorities, and they represented interests antagonistic to the Roman Church. As an example of the repugnance to cutting the human body, it may be noted that one of the few callings forbidden to priests was that of surgeon. Physicians among them were many, but these were not permitted to perform any operation, and they employed instead the assistance of surgeons. Even at the present day physicians who are fellows of the Royal College of Physicians—itself descended from the line of physician-priests—abstain from performing any surgical operation, and, like their priestly forbears, call in surgical help. It is interesting to find an interdiction of the mediæval Church seemingly surviving in a modern scientific body.

The two pioneer discoveries of the Renaissance—the one astronomical and the other anatomical—seem so far apart, and so little related to each other, that some have been puzzled how they should have been made practically simultaneously as the first steps in the revival of science. Perhaps psychology can suggest the explanation. The one discovery concerns the place of the earth in the heavens, the other the nature of the fabric of the human body. Psychologically, these are two expressions of the same problem, *What am I?* which is an elemental

question that early takes shape in the mind of every child. This curiosity, if it persists as in those who grow up with a scientific bent, develops along one of two lines, as the child tries to find the answer to its question. Either it chiefly concerns itself with things outside itself, and its interest passes to objects more and more remote until it comes to speculate on the relation of its own world to other worlds: it becomes astronomically minded, and is preoccupied with the macrocosm. Or it is chiefly concerned with things inside itself, and so comes to be interested in the structure and functions of human bodies, of other animal bodies and of plants: it becomes medically minded and later biologically minded, and is pre-occupied with the microcosm.

We are prepared, therefore, to find nothing strange in the childhood of science at the time of the Renaissance, when natural curiosity about life first became strong enough and courageous enough to dare to defy religious injunctions, if the first two questions to be propounded and answered related the one to the structure of the universe, the other to the structure of the body. At the sight of the heavens the first problem to take shape is the relation between the earth and the sun; at the sight of the human body the first problem is the relation between its parts. I am not sure that we might not go further,

and suggest that until precisely these two questions had been settled, science could not have gone on developing, nor man have come to know about the universe and about himself. These two apparently dissimilar discoveries were the necessary first steps in each direction.

The effect of them on contemporary opinion will perhaps be better appreciated in the light of another consideration of a psychological nature. In modern psychology we are very familiar with the critical importance to a child's developing personality when it first realizes that its parents have deceived it. Hitherto, its affection and respect for them have kept it from even questioning anything they have told it. Then the day comes—inevitably since parents, being human, resort at some time to lying or other forms of misleading—when it realizes that it has been deceived by them; and it is staggered. Henceforth, its childish trust is never quite the same again, and a lasting barrier has been set between it and them. The experience is painful, but it is entirely healthful. It initiates that gradual process of separation between child and parent which culminates happily during adolescence in the child becoming self-reliant and independent of parental authority, and able to think for itself.

But often the experience ends otherwise. The

child is staggered, and goes through a tremendous struggle with its feelings of disillusionment, during which the very thought of its parents' fallibility becomes intolerable on account of its love for them. In the outcome it puts them back on the old pedestal of perfection. That is to say, its feelings will not allow it to believe what its own eyes and ears have told it. It deceives itself rather than destroy a happy illusion, and having begun on this course, continues to shut its eyes and ears to many other things that are not agreeable to believe. No barrier is set up, and by adolescence it is still tied and subordinate to its parents; it lacks self-reliance and independence, and has long since relinquished the effort of seeing things as they are.

All this we can perhaps apply to these earliest discoveries of Copernicus and Vesalius, which gave the lie to the traditional teaching of the Church. They proved that this teaching was false in important respects. The Church, which claimed for itself freedom from error, had erred in asserting that the earth did not move. It was a staggering realization to Christendom, and none the less because of the relentless enforcement of the Church's dogmas. If it was wrong about one matter it might be about others. Implicit trust was no longer possible, and there began that slow process of the critical examina-

tion of the Christian position, which has continued with gathering strength to the present day.

But this has been the course followed only by the scientific minded—those who cannot but believe their own eyes and ears. Others with stronger emotions, and with feelings of reverence and awe for the Church, have preferred, and still prefer, not to permit their critical faculties to be directed against religious authority. They retain the childish faith which accepts even the incredulous, and they forfeit their independence of judgment.

We see, then, that these early discoveries at the time of the Renaissance represent the first instance of science making its voice effectively heard beside that of religion. Mankind began to be interested in the material world in addition to the supernatural, and the teaching of Socrates that man is the proper study of mankind found a new and very practical application. Though a new vista to human aspiration had been opened, its significance was imperfectly understood at the time by either religion or science. The idea of an essential conflict between them is only recent, at any rate on the side of science, and many scientists have not recognized anything in their work which seemed antagonistic to religion. Newton found that his discoveries confirmed his belief in an omnipotent and omniscient God presiding

over the universe. Joule, Faraday, Pasteur, Kelvin were all orthodox Christians or at least theists, Pasteur being notably devout of mind. We may conclude that whatever the religious and scientific impulses may prove to be, when we come later to study them psychologically, it is certain that they can coexist in some temperaments.

To resume the thread of our story. The next outstanding event in astronomy was Kepler's discovery in 1609 of the planetary laws of motion. Kepler and Galileo together demolished the entire Aristotelian system—the system which the Church had backed as true, and its authority suffered another considerable abatement. In contradiction of Aristotle's erroneous explanation of the universe, Kepler now gave the true account of it, and showed mathematically that the heavenly bodies moved according to natural law. Next, terrestrial gravity was discovered by Newton, and proved by him to be the same force that guided the planets. The earth was now recognized as a part of the planetary and stellar system, resembling many celestial bodies, and by no means the chief among them. Since Newton, science has gone ahead fast. "In reliance on the universality of natural laws," says Professor C. Singer in his *Religion and Science*, "the stars have been measured, weighed, and analyzed. The same

scientific process, directed to our own planet, has traced its history, determined its composition, demonstrated its relation to other bodies. The investigations of the physicist and chemist have suggested a structure in terrestrial matter similar to that of the stars and suns. The whole has been reduced to a unitary system."

All this astronomy has achieved. But in one significant thing it has failed. After exploring the universe to remote millions of miles, it has not found any heaven, such as the Church teaches us about, nor seen any angel; and it has not detected a single direct proof of a God inhabiting the sky. Are we to conclude that its methods are not accurate enough, or not of the right kind, to discover these things? Or is it that religion, in telling a succession of generations of the devout that beyond the clouds is a heaven, has been mistaking imagination for reality? Here we come upon another matter of the first importance where science contradicts religion. According to science the universe contains no such place as the heaven which the Christian Church believes in. And if there is no heaven, how can the orthodox spend a future life in it? Astronomical science has dealt another heavy blow at a religion whose influence is largely founded on its claim to control admission to heaven.

In reflecting on this we need to remember that the various religions are by no means agreed among themselves as to the kind of place that heaven is. The Christian conception of it is a place of angels, choirs, and singing. The Moslem paradise is provided with black-eyed houris, seventy-two of them for each believer. The Red Indian has his Happy Hunting-Ground. But in one notable respect the different religions are agreed, and that is in the firm conviction of each of the reality of its own heaven, and the falsity of the others. To the student who is interested in learning about not one but all religions, two deductions suggest themselves here. First, it seems evident that the intensity of the conviction with which a religious belief is held can be no measure of the truth of it. Secondly, it is very difficult for him not to conclude that all these heavens are equally figments of the imagination.

To return once more to Vesalius's work, which made human anatomy a modern science, and trace its effects to the present time. Solong as the religious notion prevailed of the sanctity of the human body, man was barred from even beginning to learn about his material self. But once Vesalius had shown the courage to reject and override this belief, the road was opened which led in due course to the study of the medical problems of health and disease,

and, beyond these, of the larger problems with which biology is now engaging—the conditions of life not of man only but of all living things. Along this road came first, as we have seen, the study of the microscopical details of human anatomy. Next, scientific curiosity passed to the functions of the structures so recently investigated, and in this way originated the science of human physiology. Harvey's discovery showed that poor Galen was as hopelessly unreliable in his account of the blood circulation as Vesalius had found him in anatomy. Again the Church's reputation had to suffer for having sponsored untrustworthy writings. Harvey's experimental work was the beginning of the physiology of the normal, which developed in the seventeenth and especially in the eighteenth centuries, until in the nineteenth it became the parent of the new study of abnormal physiology, *i.e.* pathology. In the last fifty years pathology has rapidly advanced our knowledge of human diseases, and therefore of the conditions of health, personal and public.

As a direct consequence of this, a great decline has come about in the activities of the Church, amounting to little less than a revolution. For many centuries it had the almost sole care of the sick; this has now passed from it to the relatively new profession of medicine. As a result the prevention and

treatment of most diseases, including pestilences which used to decimate peoples, have been made more effective in the last fifty years than in the previous fifteen hundred. None of this amelioration of the conditions of human life could have ensued except by first rejecting as false the religious belief that disease is God-sent as a punishment for sin, and is therefore best treated by prayer.

From yet another direction the Christian position has been extensively undermined. Biology, as the special study of animals and plants, was placed on a modern scientific basis by Linnæus in 1757. His work it was that led to the theory of evolution—the process by which animal and plant life has developed, *i.e.* that the origination of species was by development from earlier forms. This theory had been pretty widely discussed for decades before Darwin's *Origin of Species* in 1859 brought together evidence enough to establish it as the only satisfactory explanation of the facts. It became no longer possible to accept the biblical idea of a special creation which is described in Genesis. In the judgment of large numbers of men and women all over the world, this idea was exploded, and another error of belief put against the Church's account. Darwin's theory, it will be remembered, stirred up a perfect storm of ecclesiastical indignation:

interestingly enough, modern psychology tells us that an outburst of this kind, whether in an individual or a class, can be accepted as potent evidence of the truth of the statement which has provoked it.

It is worth noting that Christianity is not unique in having an explanation of how the world began : most religions, including the primitive ones, have elaborated their own cosmogonies. These are largely contradictory and even mutually incompatible, but here again each religion values highly its own story and misprizes all the others. Scientifically, it is not easy to recognize any essential connection between a religion and a cosmogony.

These events come so near to our own time—many still have personal recollections of them—that no one can fail to recognize in them the strong antagonism that is inherent in Christianity in respect of science, especially of new scientific discoveries. Today, when the principle of evolution has become generally accepted as the obvious explanation of the origin of species, few members of the Church of England maintain the truth of the biblical story of creation, and yet their predecessors so recently resented any scientific criticism of it at all. The Roman Church still refuses to accept Darwin's theory : on the other hand, it no longer denies the truth of Galileo's teaching for which it imprisoned

him. Given time it may come to accept Darwin's teaching also.

Next in weakening the Christian position came the evidence provided by the new science of geology. This has gradually unfolded the history of the earth, disclosing its vast antiquity dating back far beyond that which the Churches have supposed, and demonstrating a process of evolution of new forms of life over great periods of time. These discoveries have subverted the Christian teaching taken from the Book of Genesis, that God created man in his own image, and gave him dominion over every living thing. No such mark of special favour from God to man is discernible in biological evolution : quite the contrary. Man is seen to be only a recent product of an age-old struggle in which all living things are ruthlessly competing. Geology has told heavily against both the Church's testimony and the credibility of the Bible.

Further new facts of similar import have been furnished by the study of embryology. It was found that the course of human development resulting from the union of two sex cells was practically identical with that of animals, and that the human embryo and other embryos were so alike as to be indistinguishable. A suggestive detail is that the human embryo at an early stage is provided with

gill slits such as are needed only by fish: the inference from this can only be that man is descended from aquatic ancestors. As a sum result the conclusion became irresistible that man was not a special creation distinct and apart from animals, but that his multitudinous bodily similarities to them, and even identities with them, proved him to be an animal himself. Finally, the recent researches of psycho-analysis have shown that man's emotions and impulses are practically identical with those of animals. This has removed the last barrier which the Church had interposed between him and the rest of God's creatures.

Yet other important aspects of Christianity have been seriously affected by scientific research. First, the claim that the Bible is an inspired book, every word of which is to be accepted as true, has ceased to be tenable. Just as the infallible authority of the Pope was denied by the Protestant Churches, and the authority of the Bible substituted for it, so now a further stage in the freedom of thought has been reached, which denies the infallible authority of both Pope and Bible. The grounds of the latter have been provided by modern biblical criticism, most of which has come from experts in theology, including ministers of the English Church. Briefly stated their work proves, Mr. Vivian Phelips tells us

in *The Churches and Modern Thought*, that the Book of Genesis is a composite narrative based on older records long since lost, and that the stories of the patriarchs are legendary. Similarly, the Book of Exodus is a composite legend and not an historical record. The same applies to the Book of Psalms, and it is doubtful whether David wrote any of it. The miracles recorded in the Old Testament are hardly credible nowadays, especially those of God slaying the Egyptian first-born, Jonah in the whale's belly, Daniel in the den of lions, and Shadrach, Meshach, and Abednego in the fiery furnace.

Again, the New Testament states that Christ was miraculously born of a virgin. This is a detail which must almost certainly have been added a good deal later, since the first Gospel claims Christ as a descendant of David's, and gives him Joseph's genealogy as his own. If his virgin birth had been recognized at the time, how could his descent from human stock have been put forward?

In several religions traditional writings are claimed on very inadequate grounds as having been inspired by their particular god. It would seem that the Bible, like many other ancient documents, has an origin much of which is obscured in the mists of history. It has been written at different ages to

express contemporary religious and even political sentiment. Once it is admitted that it is not inspired, the Bible becomes an interesting collection of ancient writings, and is of historical value as showing the ideas that took shape some 3000-4000 years ago in a gifted tribe of Asiatics. Today it is freely asked whether these ideas have not been outgrown, and the teachings based on them not become inadequate and even harmful under the conditions of modern civilization.

Finally, we come to the comparative study of religions, including ancient religions, and the study of comparative mythology, including Christian mythology. These new sciences have thrown much unexpected light on many features of Christianity, though space will allow only some of their results to be considered. The rapid decline of religious influence dates from the time when these studies were established, and science no longer allowed the subject of religion to be excluded from its investigations. The comparative study of religions has shown how much Christianity shares with pagan religions and the primitive religions of savages. At its inception it borrowed largely from earlier pagan sources. Most of the miracles recorded in the Bible are to be found also in pre-Christian religions. Even the fundamental miracles of the

Resurrection and the Ascension were taken over by Christianity in this way.

Many gods besides Christ have been supposed to die, be resurrected and ascend to heaven. This idea has now been traced back to its origin among primitive people in the annual death and resurrection of crops and plant life generally. This explains the world-wide prevalence of the notion. Among still more primitive tribes, as Grant Allen showed, it is not yet understood that sown corn sprouts because of the spring sunshine, and they attribute the result to divine agency. To this end they are accustomed at seed-time to kill their tribal god—either in human or animal form—and scatter the flesh and the blood over the sown fields. They believe that the seeds will not grow unless the god is sacrificed and added to them in this manner. When, therefore, the crop appears, they never doubt that it is their god coming to life again. It is from this erroneous belief of primitive tribes that Christianity today derives its belief in Christ's Death and Resurrection. Hence, too, comes the idea of a Saviour sacrificing himself for the good of mankind. Similarly, the special display of guilt and confession of sinfulness that are features of Church services on Good Friday, the anniversary of Christ's death, are seen to be related to the tribal

guilt which is always felt on slaying their god for the good of the tribe.

The Christian sacrament of the Eucharist carries a vastly different significance now that we know that the custom of men eating their god is one of the commonest in religions of all kinds, and especially among savages. Long before Christianity, pagan worshippers were in the habit of partaking ceremoniously of bread and wine as the flesh and blood of their god, whose life had been sacrificed to ensure them their harvest.

The idea of the virgin birth is by no means peculiar to Christianity, and the identical claim has now been found in many other religions in respect of their own deities. Indeed, the identities between Christianity and other religions go so far that several pagan religions represent their Saviour as born of a virgin, dying for the sins of mankind, rising from the dead and ascending into heaven.

Most instructive of all, the comparative study of mythology has made clear that the Christian mythology is largely duplicated in other religions. This applies to the ideas of a Trinity, an Incarnate Saviour, the Second Advent, and the Conversion of Saints. Each of these occurs also in pagan religions. The details of the life of Jesus are largely paralleled in those of Krishna, the greatest of

the Hindu deities. The stories of Christ's childhood are almost exact reproductions of those of Buddha's childhood.

These researches have placed Christianity in a most interesting position. The sum effect of them is to show that its beliefs and dogmas are not distinctive, and still less unique, but that it shares many of its features and all its fundamental ideas with other religions. It would seem that no new religion ever starts from the beginning : it takes over some, and often much, of one or more of the older religions. Christianity did this on a very large scale, adding some new details of its own. Nevertheless, Christian apologists have not made this known, but have preferred to emphasize the differences between Christianity and other religions. It is understandable if a new religion should tend to stress its novel features, and make little of its many and great affinities to an older one. Here, perhaps, is the explanation of the schismatic tendency of religions, and of the sectarian spirit which always sets more store on a few small points of difference than on agreement on the main issues. From the scientific point of view, interest must surely lie in the discovery that religions, even those which regard themselves as inalienably at variance with each other, share so much in common, including their

fundamental beliefs. It becomes the task of science to try to explain this, and to understand the nature of the religious impulse which is found to be practically universal, with minor variations of it constituting the many religions of the world. This we shall take up from the psychological standpoint in the next chapters. Once again Christianity will be our chief paradigm.

To summarize the relations between science and religion during the 1600 years since Christianity became the official religion of the Roman Empire, it can be said that for three-quarters of the time Christianity alone occupied the minds of men. After reaching the highest intellectual level of its theological dogma, it acquired and maintained for centuries an influence and an authority which have never been paralleled. Science has become recognizable only during the last quarter of the period. Developing at first very slowly, it has accelerated until its most recent progress has been very rapid. Throughout this time Christianity has preserved its beliefs and dogmas practically unchanged, but its influence has waned, slowly at first, then faster, until in recent decades its decline has been rapid. In order to judge of the extent of this, comparison should be made between the Church's position in

mediæval days as given on pp. 22-24, and its position to-day as set out towards the end of Chapter II. The falling-off in its authority and influence is so very considerable as to disclose not only decay, but advanced decay.

Church authorities themselves admit it, including a vast decrease in the number of professed Christians. The causes of this are doubtless many, but chief among them must surely be placed the rise of science and the growth of the scientific spirit. More than from anything else the great spread of irreligion in recent decades has resulted from investigating religion itself by the methods of science. For a long time modern science was timid and faltering before religion, and has only recently become self-confident as it is approaching maturity. In its earlier years it had no realization of the rôle destined for it in asserting itself against religious dogmatism. Even in the last century, as we have seen, many leading scientists were religious, and saw nothing incompatible in these two sides of their natures. They did not realize, as we do now, that with all the scientific acumen with which they solved problems of nature, they stopped short of directing their critical faculty to the religious problem. Science was still too immature to presume to submit religion to critical investigation. Religion on its side, in-

vesting itself in an intimidating atmosphere of holiness and awe, insisted that it should not be subjected to examination by science. With the further help of repressive laws it succeeded for a very long time in checking practically all criticism of itself.

If, next, we compare the features of the religious habit of mind with those of the scientific, we shall reach some very illuminating conclusions. It is in its conservatism that must be recognized the fundamental characteristic of the religious attitude. In all religions, it would seem, is the strong disposition to resist change, and to continue in the present as in the past. The only exception to this would appear to be when a religion is new and still growing; but once the limit of its theological development is attained, as it needs must be, the whole weight of opinion is against further change. Innovation then comes to be regarded as unorthodoxy and heresy. This conservatism shows itself primarily in a respect, even a reverence, for authority; and this comes to mean past authority, and ultimately remotely past authority. In keeping with this goes a special regard for tradition, however shadowy its origins may be. These features show that religion attaches greater store—very much greater store—to the past than the present. All its chief teachings date from the past, all its great figures belong to

the past. It worships dead relatives, dead ancestors, dead gods and saints. It is essentially a Cult of the Dead and the Past.

Science, on the other hand, is essentially progressive. Change and innovation are its everyday experiences, and heresy is unknown to it, since it has no established beliefs, but advances by means of new views. It not only holds tradition and authority as of small account, but subordinates them to fresh discoveries in its aim of keeping up to date. Its interest lies with the material conditions of life, and for the purpose of improving them year by year. It is a Cult of the Living and the Future.

Next comes the intolerance shown by religion. It was intolerance that made the Roman Church deal as it did with heretics, and with the young Protestant Churches. It was intolerance that explains the Church of England's efforts to penalize Nonconformity. It is intolerance again that keeps the present-day religious community split into sects, though they agree on the main issues and differ only on points. In contrast with this, science implies tolerance. It cannot exist except by freedom of thought. It welcomes the interplay of individual opinions, and esteems open discussion as the best means of distinguishing truth from error in scientific progress.

Is it possible to account for the intolerance of religion and the tolerance of science? I believe it is. It would seem that intolerance must always be a mark of the religious mind, for the reason that religious belief is always a personal matter: every religionist attains his faith as the result of a mental process—the fantasy nature of which will be discussed later—which is essentially his own, and which leads to its foregone conclusion. This he accepts with all the intensity of an inner conviction as being God's truth; an intensity which in some religious minds is equalled only in the delusions of the insane. He usually fails to realize that his belief is only his own belief, and that other men's beliefs are just as well founded—or ill founded. He feels that any beliefs other than those he happens to have formed are false, and he probably wants to impose his own on others, to convert them and save them. In social life, therefore, religious beliefs, precisely because they are based on individualistic ideas, tend to have a disruptive effect in dividing communities against each other.

Scientific tolerance, on the other hand, bases itself on the inadequacy of individual opinion and judgment, since these are never free from emotional bias and prejudice, and commonly are much warped by them. But, as these biases vary from one

individual to another, they tend to cancel each other under the conditions of free-thought and open discussion. These conditions promote the aim of science, which is to discover the outside world not as distorted by the vision of any individual, but as seen through the eyes of many. By inviting criticism and the expression of original opinion, science seeks to pool the wisdom of the many, replacing individual opinion by a consensus of trained opinion. In this its social influence is an integrating one, tending to bind communities together, and not separate them. Tolerance comes with a better understanding of others, and of things outside oneself, and is a result of interest in the outer world. It is associated, therefore, with the scientific habit of mind, in contrast with the religious, which seeks its ideas and standards by turning the mental eyes inward.

Another contrast that we have noted between religion and science is that of sacredness and profaneness. It will be recalled that both magic and religion are held by primitive races to be sacred, and are enveloped in a mysteriousness which places them above critical scientific investigation. Magic and religion, as we shall see, share this in common which distinguishes them from science, that they are expressions solely of the imaginative aspect of

mental life; and as such they are opposed to the reality thinking that goes with science. Sacrosanctity secures its inviolability by appealing to awe and other forms of fear, with the help of dire threats of punishment. Its function, therefore, would seem to be to preserve the more primitive mental processes at the expense of the scientific, in which case it belongs biologically among the conservative tendencies, with the profaneness of science an expression of the progressive side.

Let us turn now to consider a criticism which is often advanced in favour of conservative Christianity and against progressive science. It is that science is for ever changing, and what it says one day it alters or even denies the next. The criticism is just, though as science is at present young and growing, Christianity might remember that it, too, was once a new movement. So novel were its teachings in those early days that they were officially stigmatized, Tertullian tells us, as "enemies of the gods, of the emperors, of the laws, of morals and of all nature." The great extent to which Christianity was itself changing and altering through its first centuries is evident by comparing the original brotherhood of Galilean fishermen with the Roman Papacy of, say, St. Gregory (A.D. 590). A world of difference lies between these two; in fact, it is only

just possible to recognize anything they have in common. For several hundreds of years the Church found it necessary to change and elaborate both its creeds and its organization. If science today is changing, it can at any rate quote the precedent of Christianity.

Moreover, Christianity makes no complaint of the great changes that have gone on with its approval and support, in those arts which are ancillary to itself, including architecture and painting. An early Saxon church, for instance, evolved into a Gothic cathedral at Canterbury. Or compare the primitive paintings in the Roman catacombs, where some early popes are buried, with Michael Angelo's ceiling of the Sistine Chapel. In both these examples are change and development indeed.

But in truth, of course, science does not change so far as the great mass of its discoveries, but only at its developing fringe where new discoveries are being made. Scientifically it is settled for all time that the lunar cycle is twenty-eight days, that sulphuric acid poured on to zinc sets hydrogen free and forms zinc sulphate, and that dolphins suckle their young. Each established fact of science must have been at one time, however ancient and even prehistoric, the latest exciting discovery; and countless numbers of these make up the body of

science which does not alter. Science changes only on its growing side, where it is advancing into the still unknown, and making new discoveries. Each of these must be tested before being added in its turn to the stock of established facts. Only here is science equivocal; and it is necessary for it to put forward one explanation and then another, until it finds the right one. It must always proceed in this way, unless it is to come to a standstill. Christianity, after its period of growth, reached maturity many centuries ago, and has not subsequently developed. No further progress was open to it, and it has since been decaying. Who can say that science may not come to full stature some centuries ahead, and begin to decay in its turn, while some new and to us unimaginable substitute takes its place? But at present it is still quite young, with most of its achievements to make.

In fine, science and religion have not a great deal in common, and on the far-reaching grounds just discussed they are antagonistic and mutually exclusive. Need we therefore despair of applying and utilizing both for the benefit of humanity? A possible agreement between them, perhaps the only conceivable one, would be to regard each as supplementary to the other, religion to explore its supernatural world, science the natural; and neither of

them to trespass on the other's sphere. In this way might be turned to useful ends both the great store of scientific energy and the great store of religious energy. These are two main sources of human activity. And yet the antagonisms between them would remain. It is not possible to permit free-thought and at the same time to enforce religious orthodoxy. Nor is it possible to be critical of authority and also to venerate the past. We can only conclude that, in the event, either science must supplant religion or be supplanted by it.

The opposition between the two is unmistakably recognizable throughout history. Those who today are beginning to affirm that no conflict lies between them, need to take into account that the Churches themselves have not been under any misapprehension that science is their enemy. Apart from their active opposition to it, of which ample proof has been given in earlier pages, where is the evidence that they have willingly done anything to advance it? Of the vast sums of money that have passed and still pass through their hands, when have they set any of it aside to further science? The very suggestion of a Church financially endowing scientific research is so strange as to be absurd.

To go even further, the conclusion seems irresistible that science is supplanting religion even

within the Churches themselves. The modern Churches have taken a new subject of interest—the social conditions of human life. In this it is the material welfare of their flock, and not the spiritual, with which they now concern themselves: with the conditions of the natural world, not the supernatural. They are, therefore, accepting and applying the discoveries of science, and to this extent acquiring the scientific outlook. All this is to the good, and much preferable to impeding science; but the question asked by religionists themselves is whether this new departure is properly any part of religion. It seems evident that it is not. In recent years we have seen the Churches concern themselves with the problems of unemployment and capitalism; their very latest attention is given to slums and overcrowding. If the slums have been with us for centuries without the Churches doing anything about them, it is at any rate welcome to find them responding to the propaganda of non-religious bodies in this and other matters. The inference is, however, that they are following the lead of others, and not taking it. This is their position in so many questions of great social importance, that it cannot be denied that the moral leadership of the nation has passed from them. Instead, they tread in the steps of secularism. The

claim is sometimes heard on their behalf that their duty is to awaken the public conscience. Is it not rather that public opinion has had to rouse the social conscience of the Churches?

Civilization can be guided by religion or by science, but not by both. That this is an accurate interpretation of history will be confirmed in the following chapters on psychology and religion. The newest application of the scientific method—psychology—has greatly extended our understanding of both science and religion, and of the relations between them, and has shown where their incompatibility lies.

CHAPTER VII

PSYCHOLOGY AND RELIGION

THE successive steps in the application of scientific discovery to Christianity which were considered in the last chapter extended over a period of about four centuries. They were taken at first very infrequently, but later more and more often until in the last few decades they have become rapid, in keeping with the quickened progress of science generally. The latest advances have been made by modern psychology with its greatly enhanced understanding of the human mind. In little more than twenty years an intensive psychological study of religious phenomena has been carried out, and it can fairly be claimed that during these few years more has been learned scientifically about religion than in the previous two thousand. Psycho-analysis was primarily concerned with the investigation of mental processes, and in the course of this it found itself in a position to throw nothing less than a flood of light on the subject of religion. As the youngest in the succession of sciences it owes its place to earlier research,

especially in anthropology and comparative religion, which have provided it with inestimable material about primitive man to use in the study of civilized man.

These researches have been accomplished not only without the co-operation of religionists, but largely in spite of their opposition. It is still widely urged by many of them that religion is to be exempted from psychological investigation; on the ground apparently that science should keep to its natural world, and that it is quite out of place in the spiritual. "When psychology proceeds to explain religion," wrote a theologian and preacher recently, "it is simply passing out of its province, and we must say to it, 'Hands off.'" Though this author can hardly have realized it, this claim to inviolability is the same that Christianity has made to science since Urban VIII sent Galileo to prison. The Churches assert a sanctity for themselves, and it is characteristic of priestly castes, savage and civilized, to envelop their procedures in mystery and awe. This succeeded for a very long time in intimidating criticism, and only recently has science begun to ask why any aspect of human activity should be marked off in this way. With the rise of modern psychology it resolved not to be deterred any longer from extending its investigations to religious subjects, even the

most hallowed. "Hands off" cannot now be an effective cry, since no one wishes nowadays to enforce orthodoxy by the methods of mediæval fanaticism.

Whether this psychological study of religion would prove valuable or not could not be predicted. Psycho-analysis began by understanding the main groups into which humanity falls—normal, neurotic, insane, sexually perverted, delinquent, and criminal. In the course of its study of individuals it found a religious side in everyone, which proved to be closely related to the other aspects of human nature. It became a frequent observation that all these aspects were interdependent, and that as the other sides of an individual underwent change, so did his religious attitude and beliefs. It was not possible to regard the religious impulse as being in a watertight compartment by itself, still less to accept it as sacred and outside the purview of research. It was seen rather as a part of the whole personality, influencing it and being influenced by it.

Two special lines of new research began to furnish unexpected information on religion. The first was the study of primitive races and their religious customs. Here the pioneer work came from Sir James Frazer. The second, and even more pregnant, was the psycho-analytical study of child psychology.

This has now reached an advanced stage. It shows how the details of adult psychology have developed step by step from childhood, and that the origin of adult psychological traits is to be discovered in childhood. The religious notions of an adult originate in the same way, and it is these observations that are to be set out here. In doing this we must be prepared to find that the old conventional ideas about religion will appear in a very different and entirely novel light. We recall how vastly different the heavens are as described by modern astronomy and by traditional religion. The contrast is not less between religion as seen by modern psychology and by theology.

Before proceeding with this we need to acquaint ourselves with one or two general conclusions based on psycho-analytical researches. Perhaps the most momentous change in opinion that has been enforced by psycho-analysis is the recognition of childhood as the decisive period in the development of personality and character. It is within the first five or six years that are settled for good the main psychological features of every future man and woman. This is now generally admitted. After all it is only in keeping with what is known of bodily health, that it is most susceptible in childhood. Another hardly less significant conclusion established

by psycho-analysis is, as we have just seen, that every detail of adult psychology is traceable through adolescence to an origin in childhood. To put it the other way round, a process of psychological development beginning at birth proceeds uninterruptedly until maturity, the relatively simple psychology of infancy becoming gradually elaborated to the complicated psychology of adulthood.

With many, possibly most, children this growth proceeds happily enough, and produces mentally sound men and women. But with many others something goes wrong during these critical earliest years, and henceforth some sort of mental unsoundness shows itself. This may be of many kinds, ranging from a mere oddness or peculiarity of temperament to grave forms of insanity. The most usual is some form of neurotic trouble ("nerves"). It is difficult to overstress the importance of realizing that mental health and ill-health are essentially matters of childhood.

Next, psycho-analysis has shown that a child possesses only crude and primitive impulses. They are biologically inherited from its animal ancestry, and even the sexual impulse is evident in quite little children. These discoveries were unexpected and surprising to psycho-analytical research when it made them, and have stirred widespread antagonism

among those who are unable to realize that there is nothing objectionable or humiliating in an animal impulse, not even the sexual. In this connection it has been well pointed out that mankind has thrice suffered a heavy blow to its self-esteem. The first occasion was when Copernicus proved that the world was not the centre of the universe : and the second when Darwin showed that man was descended from animals. The third was recently, when Freud discovered that man had the instincts of animals. On each of these occasions general opinion has been shocked and indignant, and religious opinion especially has felt itself outraged. The Churches seem always to have laid themselves out to emphasize the differences between man and animals, holding that they are separated by an unbridgeable gulf. Science, on the other hand, has recognized the innumerable bodily relationships which have gradually been shown to exist between man and other animals ; and now psycho-analysis has established the animal nature of man beyond question.

Another generalization from psycho-analysis needs stating here. Mention was made just now that mental unsoundness is the outcome of something having gone wrong in early childhood. What kind of something is this ? It is a check set to the course of normal development ; and the effect of it is that

a psychological stage which should be passed through and left behind in childhood persists into adult life. That is to say, temperamental characteristics which are normal in a child are still manifest in adult life—when they are far from normal. In all cases, therefore, of mental unsoundness is to be found something of a childish attitude to grown-up life. They are individuals who have failed to mature properly, and what is wrong with them is that their dispositions are part child, part adult. Medical psychologists study these errant types, and become very familiar indeed with the childishness and immaturity of some of the ideas and behaviour of otherwise mature men and women. These adults are in part tied down to an earlier stage of development, and to this occurrence has been given the name "fixation." Among the many kinds of fixation, one of the commonest is a parent-fixation. For example, a man may be still tied in his affection to his mother—an attachment which is normal in a little boy—with the result, among others, of being rendered incapable of responding emotionally to women as other men do.

With these introductory remarks we can now proceed to the psychology of religion. Chief among the characteristics of religion must probably be reckoned the belief in the supernatural, but before dealing with this we shall need to pass in review

several of its other features. An early step in applying psychology to religion was taken by Freud some twenty-five years ago, when he pointed out the remarkable likenesses between religious practices and the behaviour of sufferers from obsessional neurosis. In this kind of mental illness the subjects of it show a strong sense of personal sin, and are also irresistibly constrained to perform series of acts which may amount to regular ceremonials. The acts themselves are dictated by their feelings of guilt, and are always protective or propitiatory—attempts to ward off some imaginary harm which has been suggested by the feeling of guilt. The resemblance of these and other details of obsessional cases to religious practices suggested to Freud that the obsessional neurosis was a private religious system, and religion a universal obsessional neurosis.

This first application of psycho-analysis to religion was illuminating enough to stimulate many other studies. The Christian idea of the Immaculate Conception was found to exist also in other religions, and this curious notion was shown by Otto Rank to be one which takes shape in the primitive minds of most children. It seems that children, while still ignorant of the true facts of birth and impregnation, often imagine that their mothers have given birth to them without intercourse with a man. Again, the

central rite of the Eucharist, in which the flesh and blood of Christ are eaten, had already been related by anthropologists to similar ceremonies in many other religions in which the god is eaten sacramentally; as a further step all these sacraments were traced by Freud to a common origin in the ceremonial of primitive savages, among whom it is customary for the father of the family or the tribal head to be ceremonially killed and eaten.

With further advances in psycho-analysis, interesting facts have gradually been collected which have an application to religion and the religious life. I may briefly refer to some of the chief of these.

CONSCIENCE

Religion sets great store by conscience as a sense of right and wrong, and holds that God has implanted it in the breast of each of us. In the course of psycho-analytical studies of individuals, conscience was met with often enough in adults and older children, but seemed never to be traceable to early childhood, and gradually it became evident that it first takes shape only at about the sixth or seventh year. Further study of its beginnings showed that these are composed exclusively of parental injunctions and prohibitions. Especially what the father says,

sinks into the receptive mind of a little child, to become its first standards of right and wrong, of good and evil. Years later, the parental origin being long forgotten, these admonitions remain as conscience. The "innate" sense of right and wrong, of knowing good from evil, means no more than the parental sense of right and wrong. This may be broad or narrow, sound or faulty, and in any case has been derived by the parents from the grandparents, and so on.

Conscience is accounted for in this way by psycho-analysis without the need of assuming a divine origin for it. It is implanted in us by our heavenly Father no more directly than by the agency of our earthly father. In many examples it has been possible to show that the "voice of conscience" or the "voice of God," when heard by an adult, has been none other than the voice of the father, as actually heard in the far-away and nearly forgotten years of childhood.

THE IDEA OF GOD

Like conscience, the idea of God is never found in early childhood. Merely to suggest that a baby of six months has any such idea is to show its absurdity to anyone with experience of infants. The early stages of the origin of the idea have now been

investigated. The notion of an abstract God presents great difficulties to children, and for a long time is beyond them. The means that serves in shaping it is to represent God as a heavenly Father, because a child already possesses many ideas about its earthly father, and it is by linking these with the new idea of a father in heaven, that the more mature conception is gradually reached. A child's feelings for its earthly father will in the main be friendly or unfriendly, and this will decide the nature of its first feelings for God. The mental picture of God which children make, of both his appearance and his disposition, always includes details taken from the earthly father.

This early blending of the two figures, the earthly and the heavenly, accounts for the different attitudes of adolescents to God. Those—usually young men—who have in general felt unfriendly towards their father, will tend to pass into an agnostic or atheistic stage; with young women a devout belief in God usually indicates an earlier strong affection for their father.

The very attributes that grown-ups customarily attach to God are precisely those which have previously been experienced in a father. He is loving or angry, stern or forgiving. He lays down the law for us, and all power lies with him. He

punishes or rewards according to our obedience to him. Even God's physical attributes are those of the father: he has a masculine figure, is tall (all fathers seem big to little children), and speaks with a male voice which can at times be angry like that of a father. This explanation is supported by the exquisitely childish features of the adult religious attitude to God. Omnipotence, omniscience, and moral perfection are qualities with which little children for a time endow their father. The sense of dependence on a more powerful being, the wish to be succoured and helped by him, and the consciousness of inadequacy in meeting the difficulties of life; feelings of love and reverence for him; the longing to be loved by him; the fear of offending him, of his retaliation, and the wish to propitiate him, to be forgiven and restored to his favour—in each of these we can recognize a child's relations to its father. Similarly, almost every aspect of the religious attitude to God is permeated by wonder and its accompanying sense of mystery—a typically childish feeling which should normally be outgrown in adult life. These and many other similar facts which space does not allow to be entered into here, seem to leave no reasonable doubt that the adult idea of God has originated in the earlier idea of the father, of which it is an abstracted and elaborated repetition.

Broadly speaking, all children develop along one of two very different lines. With many of those who gradually establish their self-dependence, the theistic stage is outgrown, leaving in adult life little or no disposition to lean on the support of a God. With many others of the contrary nature, the stage is never left behind, but continues through life as a more or less deep dependence on a heavenly Father. The latter line is, psychologically, a part failure to mature.

Two further considerations may be mentioned as supporting the identity of God with the father. First, the descriptive name which Christianity has applied to God—the Heavenly Father; this alone is almost complete proof. Secondly, Christianity, like other religions, was made by men and not by women: it is men who as boys went in fear of their father, and their godhead includes a God who is the Father. Had women made Christianity we might have expected their chief deity to have been feminine, a Mother-Goddess and not a Father-God. The fact that man-made Christianity places a father at its head goes to show that God was originally the same as the father.

In the Catholic Church, the most comprehensive of the Christian Churches, a woman is worshipped with special veneration—Mary the Blessed Virgin

and Mother of God. Though her place is below the godhead, she is continually invoked in all Catholic devotion, public and private, and every worthy Catholic is urged to implore her help and prayers constantly. The pre-eminence of her position precisely accords with that which psychology would expect to be given to any Mother of God, because she is the recipient of the infantile emotions relating to the earthly mother. How correctly this explains the facts is shown by the widespread Catholic use, religious and artistic, of the "Madonna and Child" motif. In God the Father and in Mary the Mother of God, the Catholic Church provides substitutes for both father and mother, a twofold appeal which Protestantism lacks.

SIN AND GUILT

Another important side of religion to which psycho-analysis has been able to add fresh facts is the sense of sin and guilt. This is a prominent feature in every religion—Buddhism excepted—and in all the Christian Churches it fills a very large place indeed in both doctrine and practice; the Bible abounds in references to sin. Even before the doctrine of original sin was propounded by St. Augustine, Christian theology had come to be largely concerned with the kindred subjects of

remorse and repentance, confession, absolution, and forgiveness. The doctrine of the Atonement, according to which Christ sacrificed his life to take away the sins of the world, has long held the central position in Christianity.

Psycho-analysis, too, finds that a sense of sin and guilt is practically universal, but its intensity varies greatly from one normal individual to another. Among some abnormal types it may be feebly developed; it is usually very notable in neurotics, especially in the obsessional, with whom, as has already been mentioned, it is always strongly manifested. It is in melancholic insanity that it reaches its greatest intensity, and the wretched subjects of this mental disorder incessantly proclaim their utter wickedness.

By tracing the growth of character year by year, psycho-analysis has found that most children show no sense of guilt for several years after birth, a period when they are light-hearted and care-free, and able to enjoy the pleasure that each hour brings. At about seven years it is first experienced: and with it come the earliest feelings of shame. The original guilty feelings seem to arise from conflict between a child's inclinations and its parents' wishes. At this early age children have little self-control, and will sometimes indulge their feelings

contrary to the express injunction of the parents; an occasion such as this will be followed by the new feeling of guilt. Indulgence in masturbation, which has been forbidden, is often responsible for guilty feelings. More than from anything else, the sense of guilt comes from the child's contending emotions towards its parents—its love of the one and jealousy and hate of the other. This is known as the *Œdipus* situation.

Guilt may appear earlier—much earlier—than seven years in children whose upbringing is over-strict, especially in respect of bodily functions of any kind. These are always enjoyable to a child, but can be disgusting and shocking to some parents, particularly those who, usually on religious grounds, regard the flesh and the spirit as antagonistic. With the best but misguided motives, they will try to crush their child's primitive enjoyments, instead of permitting it to be the little animal that it is. In such families quite little children may develop prematurely a heavy sense of guilt, which will remain as a source of lifelong misery to them and perhaps to others; as grown-ups they tend, if religiously inclined, to adhere to those sects which lay stress on the sinfulness of the world.

It would seem that there is a relation between the vast stores of guilty feeling which find daily expres-

sion in religion, and a correspondingly huge amount of misunderstanding and mishandling of children, whereby their animal biological tendencies are checked and damaged. The less a child's guilt and shame are appealed to, the better its chance of growing up happy. If this was followed with all children, we might expect in a single generation to find few who would be preoccupied with the wickedness of life. Even at the present time, according to psycho-analysis, the healthy maturation of character implies that the sense of guilt will be outgrown, and that we should be able to do what in our judgment seems right to us, without embarrassment by guilty feelings based on the standards of our nursery days.

PRAYERS AND PRAYING

This is another subject on which recent psychology has found something useful to say. It is characteristic of every prayer, whether private or public, that it embodies a request to some superior power either to secure its favour or to avert its wrath. Psycho-analysis has made us very familiar with the problem of wishes and desires; and a prayer is one of the many ways of expressing a wish. It is in the same category as other means of getting what we want, but by invoking the help of a greater authority it

reveals itself as a survival of the infantile habit of dependence on a parent. In contrast with this, the mature adult way to satisfy a want would be to set about it ourselves.

A second feature of prayers, whether petitionary or propitiatory, is that the words and even the thoughts composing them, are supposed to be able to influence the god in the desired manner. Here we are on familiar ground—the magical belief that thoughts and words in themselves possess a potency in the outside world. Praying, therefore, would seem to be one of the many survivals of magic in modern religion. In this matter the different religions show their mutual exclusiveness by esteeming their own methods of praying, but not those of other religions. A Christian community will pray to God for rain, but will have no opinion of an African tribe that prays to the new moon to give good hunting; and yet psychologically the two actions seem essentially alike.

A word about the frame of mind into which the devout of every religion are accustomed to get themselves for the purpose of praying and worship. According to Dr. R. H. Thouless in his *Psychology of Religion* (1924), this is indistinguishable from the emotional state of auto-suggestion, which may often be met with apart from praying. According to

natural theology, the essence of worship is that the worshipper is drawn out of himself, and wholly given to the object of worship: psychology would describe the condition as the exact opposite, that the worshipper withdraws into himself, shuts out his sensory perceptions, and gives himself over to rumination in an auto-suggestive state. The frequent indulgence of auto-suggestion, for whatever purpose, tends to increase suggestibility; and as this is another feature of the child temperament, to foster it in an adult is likely to be harmful.

THE SOUL AND IMMORTALITY

The two kindred subjects of a belief in a soul and the hope of immortality have also been studied in their psychological aspects. It was quite possible that a scientific investigation of this nature would have succeeded in finding evidence of the existence of a soul: no one could say beforehand. In point of fact, no psychological evidence has been forthcoming—just as physiology has failed to supply anything in support of the belief, and just as astronomy has searched the skies without finding evidence of a heaven beyond the clouds.

On the other hand, a belief in the existence of a soul is found very widely among the higher religions,

and these have taken it over from primitive and ancient religions. It is nowhere more generally accepted than among savages. Psycho-analytically, the belief in a soul has no other origin than the experience of dreaming, and it takes shape in the following way. A dead or absent member of the tribe will appear in a dream ; or a living member, while asleep, will seem to participate in some distant undertaking, though his sleeping body has remained inside his hut. To the primitive mind these happenings permit of only one explanation—that the body has a soul, which can separate from it during sleep, and survives it after death. It should be added that savages never doubt the reality of their dreams, nor do the young children of civilized races. Adult savage and civilized child alike are on a mental level at which the real world and the world of the imagination are not yet discriminated.

Based on this unsubstantial belief in a soul there has developed, first the worship of dead relatives, then ancestral worship, and ultimately the Christian worship of a whole host of dead people—martyrs, saints, and apostles.

What has just been said suggests the interesting possibility of the religious mind being essentially the child mind, and as such incapable of discriminating reality from imagination. Further, history

tells us that religion came ahead of science. Might it not be that religion appertains to the childhood of civilization, to an earlier level of adult social development corresponding to that of the present-day child? In which case science, which seeks after reality, would be the expression of a civilization which is growing up. Perhaps we catch a glimpse here of a slow process of social evolution extending over centuries: for a long time a childlike stage of social intelligence, which was satisfied with the religious interpretation of life; later, a grown-up stage capable of distinguishing reality from imagination, and requiring the scientific explanation of life.

The hope of immortality which has for so long been one of the most cherished beliefs of many religions, including Christianity, necessarily depends on the belief in a soul; for if nothing in man survives death, eternal life is another figment of the imagination. Psychology, like other sciences, has failed to find any scientific evidence of an after-life such as religion believes in, and places the conception of it in the category of many other trustful expectations indulged by human nature, on no firmer ground than that of a wish and its desired fulfilment.

Nevertheless, there must be more to it than this, since the almost universal religious belief in immortality needs accounting for. What is the significance

of this belief, which, after all, is an extraordinary one? Why is it that religion is unwilling to accept the idea of death? What makes it deny the fact of death? These are questions which not only rouse scientific curiosity, but invite scientific answers. In this connection it is striking that the idea of eternal life is to be found also in modern science. Since Weismann put forward his germ-plasm theory in the eighties of last century, the biological continuity of the germ-cells has become generally accepted. With each successive generation of animal or plant life, the body-cells die, but the germ-cells live on in the body of the new generation. In this way the germ-cells are actually held by biologists to be immortal. Religion and science are two very dissimilar disciplines, but that in both of them the same idea of eternal life should be found is remarkable, and is not to be dismissed as a mere coincidence. It would seem as if both the religious side of human nature and the scientific had come into possession of the same singular notion. They might have inherited it, as it were, from some common biological source, dating back beyond the time when what religion represents biologically, and what science represents biologically, first began to develop along their own lines. It is as though the biological fact of immortality had somehow come all the way

through to psychological expression as a religious belief in eternal life. All this, of course, is highly speculative, but ideas linking biology at the one end with religion and science at the other are so rare that it seemed worth mentioning one of them.

SEXUALITY IN RELIGION

Many investigations have been made into the part contributed by sexual feeling to religion. It seems to be as certainly established on the one hand that sexuality is manifested in some aspects of religion, as it is on the other that religion comprises more than is derived from this one source. At the moment we are concerned only with those aspects of religion which are demonstrably sexual. A general relation between the two is evident in the proneness shown all through history for religious excitement to rise into erotic excitement and sexual licence, especially among religious sects and at times of religious revivals. More particularly the sexual nature has now been established of several aspects of religious practice and belief.

RELIGIOUS CONVERSION

Let us take first what is known as religious conversion. This is the term applied to the process

by which individuals forsake their lower selves for the higher. To continue this theological terminology, conversion represents "Christ coming into the heart," "the human life being swallowed up in the life of God," and it is explained as the direct action of the spirit of God.

This process may be gradual but is usually sudden, and its classic stages have often been written about. First a feeling of intense misery and sin, accompanied by a revulsion from it; then a crisis, more or less sudden, which ends in a feeling of satisfaction and peacefulness, with a newness of outlook on life. It is a fairly common event, with many famous instances from St. Augustine to John Bunyan. It is by no means peculiar to Christianity, for it is well known in Buddhism, Brahminism, and Islamism, as it was in ancient Greece and Rome. But chief importance has been given to it by Christianity, which regards it as an essential feature of religious development.

To turn now to the facts presented by psychology. Conversion is essentially a phenomenon of adolescence: according to Professor de Sanctis in his *Religious Conversion* (1927), the mean age among young women is fourteen and among youths sixteen. Psychologically, the phenomenon is none other than the new strong tide of sexual feeling that accompanies

puberty, being checked in its usual course and deflected into religion. The check comes from an undue sense of guilt about sexual matters; and this is the outcome of a correspondingly undue strictness in the child's earlier training, such as is often found in this country in homes with an Evangelical atmosphere. We can only regard the theological explanation of conversion, "Christ coming into the heart," as a picturesque description of religious enthusiasm which is really misplaced sexual feeling.

MYSTICISM

Another expression of the religious impulse in which sexuality is plainly recognizable is mysticism. This has played a large part in Christianity and a considerable part in other religions. It is the name applied to a type of religious activity, the characteristics of which may be briefly summarized. It seeks to obtain communion with the ultimate reality or God by means of contemplation, self-surrender, and an absorption of the self into the unseen world: the distinction between object and subject is obliterated, and "all is resolved into a oneness." Other of its features will appear immediately. The religious mystic, in this endeavour to apprehend God, passes through a succession of psychological states, the final of which is referred to by the

devout as the stage of the "ecstatic vision." This is marked by intense emotional excitement, loss of self-control, and insensibility to external impressions; and it finds frequent verbal expression in references to a divine lover, betrothals, and heavenly or spiritual marriage.

The parallels between this and sexual excitement are impossible to miss—the intense emotion, the loss of control, the insensibility to external impressions, and the amorous speech. It is eroticism that seeks communion with another; and during the sexual orgasm the distinction between object and subject is indeed obliterated, and "all is resolved into a oneness." Any doubt that the mystical experience is a sexual one seems to be removed by the Rev. W. B. Selbie's account of it in his *Psychology of Religion*. "It may mean," he says, "an ecstatic sense of absorption in the divine, often sensual and even erotic. . . . It covers all degrees of relation with God, from union with the will of God on the one hand to spiritual marriage on the other. . . . The idea of a heavenly or spiritual marriage is sometimes merely a picturesque way of describing a complete union of souls. But in other cases the metaphor is pressed in detail, and the language used is strongly erotic." We may conclude, therefore, that sexual feeling makes a

substantial contribution to mysticism, which is itself another instance of misplaced and unsatisfied sexual desire. In view of this, it is instructive that mystics attach great importance to a period of sexual abstinence as a preliminary and aid to getting themselves into the mystic state.

SEXUAL DEPRIVATION AND RELIGIOUS ADORATION

Sexual deprivation must also be the state of those who, like cloistered nuns, have taken vows of chastity. Psychologically, it is inevitable in these cases that their unsatisfied erotic feelings should find expression in some "non-carnal" direction. This can be recognized in convents in the fervour and warmth of the devotion and adoration with which nuns address their Lord Christ. Sometimes their feelings are expressed under a veil of spiritual symbolism, but often in language which is unmistakably erotic. With healthy young women entering on a cloistral life, one of the necessary but hard tasks before them is to detach their feelings from the human man and bestow them on the Divine Man; and it is in just this way that their devotion becomes sexualized.

This is interestingly confirmed by the nature of the Catholic ceremony for a nun who is about to take the veil. After serving a period of probation, and as her

last appearance to her relatives and the world, she is dressed as a bride, and put through the regular wedding ceremony, except that no man is present as bridegroom: she is married by a wedding ring to Christ. The rite could hardly be better planned to illustrate, psychologically, how sexuality can come to enter into religion, and be mixed up with religious practices.

LOVE OF GOD AS LOVE OF PARENT

So far we have been able to recognize sexuality showing itself in these various ways in religious life. In other directions, too, it has been found, though space will not allow us to deal with most of them; more particularly in religious symbolism and ritual, much of which has an original sexual significance. We have, however, still to consider what is probably the most extensive permeation of religion by sexuality. Before proceeding to this I may perhaps be allowed to make a comment on the connection between religion and sex. It should be unnecessary to explain that its association with sex is in no way derogatory to religion. Psycho-analysis, at any rate, regards sexuality without any sort of unpleasant feeling; it accepts it as a biological ingredient of human nature, neither better nor worse than any other ingredient. But the feelings of religious-

minded people have often been hurt, and even outraged, when the erotic element in their beliefs and practices has been pointed out to them. This seems to be mainly due to religion's own valuation of sex as something bestial, repulsive, unclean, and certainly not to be spoken about openly. Indeed so deep and inveterate is its dislike of sex, that we shall probably be wise to recognize it as something inherent in the religious attitude. It is a fact for which we must try to find the explanation. This very antagonism might give us some useful hints if we could trace the relations between science and religion right back to their biological origins.

To pass now to the last example that we shall consider, which I have just referred to as being probably the most extensive invasion of religion by sexuality. It is another important instance of a characteristic of child mentality persisting into adult life, and to understand it we need to know something of a normal child's emotional relations to its parents. Psycho-analysis was first in discovering the existence of an infantile sexuality, which develops and expands into adult sexuality. In the love-life of children we meet feelings of love, jealousy, and hate, which are hardly less intense, and certainly less controlled, than in the sexual life of grown-ups. But in child life there is a comparative simplicity,

in that these feelings are stirred for a time by two individuals only—the parents (or those who act as parents). For several years a child is deeply influenced by these two—more deeply than by all others. Its earliest experience of the world is, therefore, as a place composed of father, mother, and self.

Within the small compass of its family it is destined to receive all its earliest impressions, which are also its deepest and most enduring. But, for all the apparent littleness of its world, its life is tempestuous as well as smooth, and includes both the distress of jealousies and hates, and the contentment of happy loving. Its parents are of different sexes, and at times it jealously and intensely wants the one of the opposite sex all to itself, and the other effectively disposed of. This is the earliest form of the eternal triangle, and in a nursery a child can be torn on account of it, the little boy raging in his heart against his father, the little girl against her mother. Following on these hostile moods come the dread of retaliation, fear of the parent, and the desire to propitiate the offended power. With rather older children, guilt and remorse are added, and the wish to be forgiven and taken into favour again.

All this is known to psycho-analysis as the *Oedipus* situation. It represents a child's first

experience of loving anyone outside itself, the first human stimulus of its immature sexual feelings. It makes an impression so deep as to be still recognizable in its grown-up sexual behaviour. Surprising though it may seem, in whatever ways its feelings have been roused by its father and by its mother, so will they be stirred in adolescent and adult life by other men and by other women.

These then are the chief psychological details of a child's relations to its parents. The adult religious feelings for God the Father, even in the finer details of their expression, will be found to reproduce exactly a boy's emotional relations with his father, his love for him, his conflicts with him, and his wish for forgiveness and reconciliation. Psycho-analysis, by familiarizing us both with the workings of the child mind and with the childish elements in so much of adult behaviour, has left us with no doubt as to the real nature of the religious attitude to God. In this matter religion is accepting the child's experiences of its family life, and enlarging and projecting them on to the universe.

To apply this a final step further, what exactly is the nature of a boy's feelings for his father? It is now generally accepted that a child's feelings for its parents are of the same sexual character as its later feelings for other men and women. It would

follow, therefore, that the religious feelings for God must also be originally sexual. This last point is of special value because that part of the religious field to which it refers is very large.

DOCTRINE OF THE HOLY TRINITY

Once we become familiar with the child element in the psychology of religion, fresh instances of it offer themselves. Take the doctrine of the Holy Trinity. This occurs widely in many religions, and is concerned practically always with a deity composed of Father, Mother, and Son. In its exceptional form in Christian theology, the Mother was replaced by the Holy Ghost, for reasons, J. M. Robertson tells us, which happened to have cogency when the Christian doctrine was formulated in the fourth century. Sir James Frazer, too, suggests that the function of the divine mother was at that time assigned to the Holy Spirit.

Now to look for the origin of the doctrine in childhood. We have just seen that a child throughout its earliest and most impressionable years is influenced almost exclusively by two individuals only—its parents (or their substitutes). It is profoundly impressed by these two, its interest outside itself centres in them, its horizon is bounded by them. Its earliest conception of human-kind must surely

be as consisting of its father, its mother, and itself. Here is its first experience of a trinity.

The notion of a threefold deity is, to say the least, a strange and remarkable one, and its world-wide prevalence puzzling, until we recognize the idea as having taken shape in the child-mind with reference to a human family, and later having been projected on to the universe by theological speculation to constitute the godhead.

DOCTRINE OF DIVINE MEDIATION

Next I should like to suggest the childish origin of another theological doctrine—that of divine mediation, which is so remarkable a feature of Christianity. According to Christian theology, it is Christ who mediates between us and the Father. God is held to be the final object of spiritual love, and Christ transfers our affections to him, and, by establishing right relations with him, enables full confession to be made and forgiveness to follow. The essence of the doctrine is that our requests of God are to be made only through Christ.

The Catholic Church recognizes other heavenly mediators as well—the Virgin Mary, the apostles, and saints—but the condition is still that of indirect approach to God. In none of the other great

religions is the doctrine to be found as such, though the same idea may be seen in practical operation in all of them. The founders of Buddhism, Confucianism, and Islamism claimed only to be prophets of God, and concerned to find a way to worship him, but each of them has come to be worshipped by millions as an intercessor with God himself.

How are we to account for this well-nigh universal human need to approach God, not directly but through an intermediary? When one comes to think of it, this notion, too, is a strange one. Its psychological explanation must be applicable not to one nation but to many; and I am going to suggest that it is to be found in a very simple feature of child psychology. We must still not forget that all the great religions have been established by men and not by women.

In child behaviour we are very familiar with the fact that children, little boys especially, stand in awe and fear of their father, and if they have a request to make of him, they prefer to go to their mother and say, "You ask him for me." Their difficulty is all the greater if a disobedience or a transgression has to be confessed—"You tell him; I can't," pleads the boy with his mother. It is the mother who mediates between the boy and his father, and opens the way to direct confession and

forgiveness—and all this, as we have just seen, is precisely the function assigned to a divine mediator. When further we recall that the heavenly Father grows directly out of the earthly one, can we resist the conclusion that the doctrine of divine intercession originates in this childish awe and timidity which is to be found in nearly every nursery? If this inference is valid, it seems to me that the phrase with which Christian prayers customarily end, "through Jesus Christ our Lord," is the grown-up variant of the little boy's "You ask him for me." In the Roman Catholic practice of entreating Mary, the Mother of God, to intercede with God, we recognize plainly the mother-substitute pleading with the father-substitute.

SADISM AND MASOCHISM IN RELIGION

Next let us consider certain curious aspects of the religious life, in the light of what psycho-analysis has taught us about the sado-masochistic impulse. This is the element in human nature which derives enjoyment from being cruel to others (sadism), or from being treated cruelly by others (masochism). Both sadism and masochism are normal ingredients in everybody, not excluding children, but boys and

men tend to be much more sadistic, girls and women much more masochistic.

Sadism, given its full rein, finds pleasure in torturing and killing. The sadism of Christianity is evident in its treatment in the past of the unorthodox, whom it customarily subjected to forms of torture, burning at the stake and other kinds of death. It is seen on a large and extensive scale in the slaughter and massacre of heretics : these were slain in varying numbers, the highest being those in the Crusades, when Turks and Saracens innumerable were killed. It is seen again in the religious spirit that finds satisfaction in the thought of the ungodly spending eternity in hell fire.

Christianity is not alone among the great religions in this matter. The sadistic element is even more prominent in Islam, with its fierce gospel of spread by the sword. This was the method actually used, and within a century it established the faith widely over many nations. The Koran often reads like a war-song, or even a general's orders to his army, and the jihad—war on religious grounds—has been one of its ordinances since the beginning. “Slay the unbelievers wheresoever ye find them” was the early watchword of sadistic Islam, and the Prophet promised instant admission to Paradise as the reward of such of the faithful as might fall in battle.

In his lifetime "battles were fought, executions ordered, and territories annexed under cover of the Almighty's sanction."

Mahomet himself was a virile, sadistic man, as witness many incidents in his life. In the course of ten years he sent out forty expeditions, personally took part in thirty campaigns, and directed ten battles. After the battle of Bedr he "exulted over the dead with undisguised and ruthless satisfaction," and had some of the prisoners put to a cruel death. Murder and assassination he used to further his ends. He enforced sentence of exile with rigorous severity on two Jewish tribes resident at Medina. Of a third, also his neighbours, he had the women and children sold into slavery, and the men, seven or eight hundred of them, killed in cold blood before his eyes. In his *Life of Mohammad*, Sir William Muir says that the fate of this tribe "cannot be recognized otherwise than as an act of monstrous cruelty." Psychologically, this incident alone establishes the Prophet's sadism, though confirmatory evidence is to be had in plenty. It is in keeping with this that the religion founded by Mahomet is essentially sadistic, and that it expresses the male attitude to life, to the detriment of the female. Its appeal is to men rather than to women.

The religious manifestations of masochism are even more intriguing. The masochistic enjoyment of suffering is exhibited in the widespread habit of self-denial, including poverty, fasting, and sexual abstinence. The whole custom of religious penance comes in this category. To a more unmeasured degree masochism is indulged in the innumerable kinds of self-mortification practised by many Christians, Indian fakirs, and others, from wearing hair-shirts next the skin to submitting to tortures and revolting degradations. To cite only a few of the many in Christian history, we have the extraordinary austerities practised by St. John of the Cross, the loathsome penance of St. Catherine of Genoa, the deliberate quest of the repulsive by St. Francis, and, perhaps best known of all, the extraordinary penitential exercise which secured to an early Syrian saint everlasting fame under the name of Simeon Stylites.

Masochism comes to full flower in the spirit of the martyr, and the acme of masochism is reached in martyrdom itself, when the greatest of self-sacrifices, that of life, may be sought and enjoyed—all the more, often enough, for its added concomitants of torture and suffering. In the temperament of the would-be martyr usually goes no small share of stubbornness; and it is precisely the conjunction of

this with a high degree of masochism, that has prepared the stage for many a martyrdom.

Just as the teaching of Mahomet is, as we have seen, essentially sadistic, so is the teaching of Christ essentially masochistic. The spirit of self-sacrifice which permeates Christianity, and is so highly prized in the Christian religious life, is masochism moderately indulged. A much stronger expression of it is to be found in Christ's teaching in the Sermon on the Mount. This blesses the poor, the meek, the persecuted; exhorts us not to resist evil but to offer the second cheek to the smiter; and to do good to them that hate you and forgive men their trespasses. All this breathes masochism, and nothing about it is sadistic. While Mahomet was virile and sadistic, Christ was gentle and masochistic; and this, as we know, is characteristically the female attitude to life. Indeed, it is this side of Christ's nature that has always been specially exploited by the Churches. In this connection we remember that the traditional pictures of Christ represent him as an effeminate man. His emblem is a lamb—an animal that does not resist. Moreover, we recall that Christianity appeals to women much more than to men. Women, with their inborn masochism, will more readily accept Christ's masochistic injunctions, but very few men, with their innate sadism, would wish to

put them into practice. Is not this the psychological explanation of the historical fact that women have always been the Church's most numerous followers? In its early struggling days in ancient Rome it was mainly supported by women, and aided by its many rich women members; and women have formed 75 per cent. of church congregations, at any rate until the present generation.

SADO-MASOCHISM IN THE HISTORY OF CHRISTIANITY

Another implication of the essential masochism of the Christian faith is worth bringing to your notice. It is one that must have played a leading part in European history these last 1500 years, and yet I have not found it referred to: its recognition would seem to have had to await modern psychology. When Christianity came as a new gospel of peace and goodwill, civilization in Europe was at a low level, with violence and ferocity almost everywhere. The new religion, spreading first to the great cities bordering the Mediterranean, like Alexandria and Antioch, found its earliest adherents, not in the ruling classes, but among the poor and illiterate; as was the case later in Rome. And yet Constantine the Great made it the official religion of the Roman Empire—the Constantine who put to death his own wife and son, had one of his nephews killed, and had strangled

his rival emperor, Licinius, and his son after promising to preserve their lives. His way of life had nothing of the Christian spirit in it. How came he then to accept the new faith as the religion of his empire? Later, as Christianity spread gradually through Europe, it was always the rulers and never the peoples who welcomed it. "Nowhere," says J. M. Robertson, "does the Church seem to have grown from within and upward: the process is invariably one of imposition from without and above, by edicts of kings who supported the missionaries with the sword." The Church, he tells us, was accepted by the barbarian kings as a political instrument, with King and Church supporting each other for their own sakes. "The summary of seven hundred years of Christian expansion in northern Europe is that the work was mainly done by the sword, in the interests of kings and tyrants who supported it, against the resistance of their subjects who saw in the Church an instrument for their subjection." Here is our psychological cue.

With Europe governed by violence, there was ranged on the one side the rulers, from predatory kings to robber barons, a class and a type that is sadism personified. On the other side were the masses of submissive long-suffering people, the class in whom masochism predominates. The instinct

and need of the rulers was to prey upon their subjects. What more acceptable religion could they find for them than the Christianity which taught submissiveness, made special virtues of meekness and self-denial, and promised that present suffering would be rewarded by future bliss in another world?

Not for nothing have kings and rulers chosen as their emblems lions and leopards, eagles and hawks—predatory creatures which are symbols of their own sadism. What conceivable objection could they take to common folk being brought up to believe in the merits of submission and humility? Must not just this have been the appeal of Christianity to kings and tyrants through the centuries? And yet the same religion must have admirably suited their masochistic subjects: it was almost ideal in helping to ease their long-sufferance. Better than any other religion, Christianity gratified both aspects of sado-masochism, one of the most powerful impulses in human nature.

Life seems always to have been a matter of top dog and under dog, and this means, psychologically, that some are by nature more sadistic and aggressive, others more masochistic and submissive. History has no record of a time when the aggressive few were not ruling the submissive many; and, so far as the lesson from history goes, we have no reason to

anticipate any other state of affairs. We can hardly doubt that the early spread of Christianity is to be explained chiefly because the religion suited the rulers themselves. For the same reason it has survived all these centuries, and in every state where it has been subordinated to the secular power, it has become also a political force which helps the few to rule the many.

CHAPTER VIII

PSYCHOLOGY AND RELIGION (*Continued*)

BELIEF IN THE SUPERNATURAL

I SAID earlier that the most distinctive characteristic of religion is its concern with the supernatural. It seems to be an essential part of religious belief that a spiritual world exists around us as well as a natural. The spiritual world, it is held, is not subject to the operation of natural laws, and its phenomena may be in direct opposition to them. The kinds of things that commonly happen in it are things that never happen in the other world, or, if they do, must be counted as miracles. In different religions the spiritual worlds are various, but a feature shared by them all is the existence in them of gods and goddesses; these range from spirits and demons up to a monotheistic god, according to the stage of religious culture.

In all this, which counts for so very much to religion, there lies the cause of what is probably the deepest cleavage between science and religion. Science is concerned only with the natural world;

this has always been the extent and limit of its interest, and always must be. If there is a spiritual world, science has failed to detect it. But, religionists reply, this is because the methods of science, valuable enough in their proper place, are not applicable to things spiritual. In this sphere quite other methods are needed, methods which have been tested and used by religion for centuries, with results which are conclusive of the existence of the supernatural, of a mystical and unseen world. If, they say, the sensory world that science knows is real, why should not the spiritual world as known to religion be real also?

The foregoing is probably an impartial summary of the position as it has stood for many years and, as many suppose, as it stands today. But the position has been transformed by recent psycho-analytical investigations. These have been applied directly to the religious problem, with the result that the world of the supernatural and the spiritual has itself at last been brought within the scope of scientific investigation, and its psychological relation established to other mental phenomena, especially to fantasies. Let us concisely review what has been done in this connection. With the progress of psycho-analysis it gradually became evident that all thinking activities come into one of two categories:

some essentially pleasure-giving—dreams and day-dreams; others concerned with adapting our individual wants to the conditions of our environment—the kind of thinking, for example, which has to be used in all vocational work such as we undertake for our bread-and-butter. To these two kinds of thinking Freud gave the names of pleasure thinking and reality thinking; and underlying them are the pleasure principle and the reality principle, as the two main tendencies of mental action. It was the distinction between these two that gave the first clue to understanding the supernatural.

PLEASURE THINKING : REALITY THINKING

Let us take pleasure thinking first. Everyone is familiar with it in himself. It is indulged in many times daily by almost everybody, and consists of flights of thought which are usually called day-dreams. In these are pictured occurrences which express the enjoyable relief of feeling of one sort or another, especially erotic or ambitious, and including jealousy, hate, and revenge. Our day-dreams are always concerned with ourselves as their central feature, and they serve the function of gratifying desire, though in fantasy only. For example, a youth joining as a subordinate member of a business

may see himself in fantasy marrying the principal's daughter, and becoming the principal himself. A world of difference lies between success of this kind, which is only the product of pleasure thinking, and the success of actual marriage and promotion after years of hard work. It might seem superfluous to point this out, but so very many people not only have a hazy idea of the difference between the pleasure and the reality principles, but behave as if what exists only in their fantasy was a part of the real world around them. Many instances of this could be given. There is the air of superiority and conceit shown by those who imagine they are better than their fellows ; and the air of inferiority by those who think they are worse than the rest of us. Similarly, there is the undue trustfulness of many honest people, who confidently suppose that everyone is upright like themselves, and the undue suspiciousness of many dishonest people, who think that no one is to be trusted. The social difficulties of neurotics mainly arise from the conflict between their fantasies and real life, each of which counts for much with them ; while the behaviour of the insane is in harmony with their fantasies, but in contradiction with reality.

Fantasies are most freely indulged by children, least by old people. In adult life this pleasure

thinking is well known under the name of "imagination." It is used in all creative artistic work: the novelist, for instance, produces his story in his mind before he writes it. It is used similarly in scientific research, the worker elaborating new ideas and theories in his mind, to be put to the test of actual experiment.

Next about reality thinking. In the example just given the novelist writes down his fantasies. He converts them into reality thinking, first into verbal thought, then into the written word; and all of this means toil and effort, is irksome and not enjoyable. Innumerable people carry the material for at least one novel each in their minds, but are unable to submit to the mental hard work of making a book of it. Here, incidentally, is the probable reason that so many Miltos die "mute and inglorious." As with the novelist, so with the scientist who first thinks out and then performs experiments, and with all who use their brains, as the idiom appropriately runs, that is, who both think and work. It is distinctive of this kind of thinking that it associates our minds with things outside us, with our environment. Most important of all, it enables our thought processes to influence the outer world. And since science regards the world we know by sensory perception as reality, psycho-analysis has

framed the terms reality thinking and reality principle. In contrast with this, pleasure thinking (fantasying), we can now see, excludes the world of reality, shuts us in ourselves, and—again of first importance—affords us no possible power of influencing the outer world. It makes us dreamers, not men of action, with the grave danger of mistaking fantasy for reality.

This danger, psycho-analysis has shown, is, in fact, often incurred, and the numerous instances of it have become very familiar. In its extreme form it is found in the insane—people whose perceptions from the outer world are mainly or in part shut out, and whose behaviour accords with their fantasies and not with the real conditions of life around them. In this way appear, for example, insane delusions —like those of a paranoiac, who is a dangerous homicide because of his inner conviction that the world is leagued in hostility against him, and he commits murder in self-defence, as he supposes. Next come the very considerable group of neurotics ; their psychological difficulties and peculiarities are largely the result of indulging fantasies which make them unable to adjust themselves harmoniously and happily to everyday life. Of these may be instanced the many neurotic women who are deterred by fanciful fears from marriage, the idea of it being

distorted in their fantasies to something repulsive. Again, many spend overmuch time in musing and reveries, but their wool-gathering stops short of mental disease, and is little more than a handicap in practical life. Among them are those already mentioned, who treat the world disdainfully or submissively because of their fanciful opinions of themselves.

We are now almost in a position to apply what we have learned about pleasure and reality thinking to the religious belief in a spiritual world, but we had better first carry our account a step further, in order to trace the two kinds of thinking to their common origin. In doing this we shall afford ourselves an illuminating if surprising view of the working of the infant mind, since it is here that the separation of fantasy and reality is known to begin.

INFANT MENTALITY

Its elementariness is easily the most remarkable characteristic of a new-born child's mentality. Within the womb, sheltered by the mother's body from outside harm, and with all its bodily wants supplied by her, it has lived continuously asleep. The act of being born, which is exceedingly disagreeable to it for several reasons, wakes it for the first time, and it finds itself in a new and strange world.

It is without any experience to guide it; it is unable to recognize the objects around it—not even to recognize human beings from articles of furniture; it does not as yet even know that its body is its own. These are fundamental discoveries which it will be busily making in the weeks ahead, but for the present, with no experience it has no intelligence.

On the other hand, it possesses a large measure of feelings—contradicting what has been generally supposed—which are intense, probably intenser at this age than at any other. They arise in connection with its chief bodily functions, especially feeding and excreting. Mouth and stomach—with the distress that goes with emptiness, and the comfort with fullness—and bowel and bladder—with the discomfort that goes with fullness, and the relief with emptiness—are the main sources of its emotions. Feeding and excreting are for a long time its chief interests.

In contrast with this rich emotional endowment its intelligence is only now beginning, and this as the result of its experiences of the world. Each experience leaves an impression of itself in the form of a memory, usually a visual one, that is to say, a mental picture of some real object. Moreover, a memory which has been impressed at a moment of emotion of whatever kind—hunger, for

example—will be reanimated the next time the same emotion is felt, and will be seen by the child as a mental picture. So far there is nothing in this that does not apply to memory in adults. Anyone feeling hungry may readily find a picture of a meal in his mind. He sees it in his mind's eye, as the saying is; he knows it is only imaginary, and never for a moment supposes that he has a real meal before him. But with infants this power of discrimination has not yet been acquired. They regularly confuse the two, and for some time after birth are quite unable to distinguish between what is psychic and imaginary (hallucinatory), and what is objective and real. All through early childhood they see these mental images, not as in their mind's eye, but as outside themselves; they must regard, therefore, both the psychic and the real as equally real.

This, of course, is the explanation of the very common fear of the dark, a child seeing its frightening mental pictures as if they were at the foot of its bed, and never doubting their reality. To this very serious source of error and confusion has been given the name of "projection." Many adults have by no means outgrown it, and, like infants and children, are often led by it to suppose that what has existence only in their minds—whether ideas or feelings—belongs to the larger world.

BELIEF IN MAGIC

It is at this same infant level of psychical development that we find the source of the belief in magic. This, as we saw in an earlier chapter, is a belief that our wishes alone can alter the outside world. All children have it, and do not entirely outgrow it even in their teens. It exists among all savages; it occurs widely among modern civilized adults. Only recently have its beginnings in infancy been traced by psycho-analysis.

Take the case of a young infant who has begun to feel hungry. In response to its cries a something (its mother) appears and does something (suckles it), and the child, now satisfied, falls asleep. It is not to know that it was its cries that brought its mother. It supposes that because of its hunger the mother appeared. In this way it forms the belief that merely to want, produces changes in its outer world: that is, that the world is subservient to its wishes. It seems to it that the (unknown) forces of nature can be influenced by its desires; and this, as we have seen, is the essence of magic. The belief is powerfully strengthened from another direction, namely, the frequent experience of finding that, as its feelings change, its projected visual pictures—which it confuses with real objects—change also.

The conclusion seems irresistible that its feelings alter the conditions in the outer world. In other words, the world changes in response to its own wants, and this without any effort on its part. To wish is enough.

A belief in magic is, therefore, inescapable by children, and is entirely outgrown by so few adults that no surprise need be felt on occasions when it is found mixed with religion or science. At all ages it is an expression of pleasure thinking, and in no way the product of the reality principle. As a child gradually develops its sense of reality by the aid of its perceptive organs, it acquires some understanding of the laws of nature, with their independence of human wishes. In this way the scientific habit of mind takes shape, perhaps with a belief in magic persisting alongside it, perhaps, in those with the best reality sense, replacing the belief altogether.

PSYCHIC TRUTH AND OBJECTIVE TRUTH

To return once again to our study of the young infant—this time to identify in its mental functioning the origin of the religious belief in the supernatural. The confusion that exists at this age between the psychic and the real, or rather the

identification of them, is a very remarkable feature of child mentality. Infants become familiar with what goes on in their psychic world, while they are still learning their first lessons about the real world. For a time, therefore, they can only regard the psychic world as real, and the outer world as a part of it. Later, when they begin to recognize the differences between them, they learn that what is true of the one is untrue of the other, and vice versa. There seem to be two kinds of truth—psychic truth and objective truth—corresponding to the two different kinds of happenings.

It is important to realize how entirely incapable infants are, and how largely incapable children are, of discriminating between the things that are merely the creations of their mind, and the real objects outside them. At one moment a mental image takes shape, and is projected and seen as if it was outside itself: soon the image fades, and with it its projected form. We should call it an apparition. At another moment the (real) mother—a corporeal form—disappears through a doorway, or passes behind a screen and comes out again on the other side. Apparition or corporeal form, each as seen by a child, dissolves equally suddenly, completely, inexplicably.

Now to apply this to understanding the religious

belief in the supernatural and a spiritual world. In an article in the *British Journal of Psychology* for 1921 dealing more fully with this and related topics, I wrote: "Where the pleasure principle dominates and psychic truth is accepted as the standard, interest passes to elemental psychical processes, and thence to the supernatural and spiritual; this is exemplified in the evolution of religion and personal religious faith. Alternatively, with objective reality as the aim, chief importance is given to the facts of the physical and material world, and thence to natural laws; along this line come science and an interest in science" (p. 270). Here was set out—for the first time, I believe, and the account has since been generally accepted—the essential nature of the religious impulse, and also the primary relationship between religion and science. Let us consider these a little more fully.

When religion asserts its belief in the supernatural and the existence of a spiritual world, we now understand because we find ourselves on familiar ground. We recognize the belief as another product of the fantasy-making function of the mind which exists in all normal people, is more noticeable in neurotics, and most marked in the insane. When religion claims that its spiritual world is exempt from natural law, we agree, because

we know that in the fantasy-world the writ of the law of nature does not run. We can each of us readily create a fantasy which is improbable or impossible. In the example given earlier, the young clerk may in his fantasy marry his principal's daughter, even though there is no daughter at all.

The methods of psycho-analysis have thus proved applicable to the sphere of the spiritual and have shown beyond any reasonable doubt that the mysterious unseen world of religion is made of the same stuff as these elemental creations of the infant mind. The very depth of the belief in the supernatural, and the existence of it in practically every religious system, are understandable now we know that the supernatural represents a persistence and elaboration of a tendency which is rooted in infancy. Religion, in this final and fundamental aspect, still reveals itself as a childish survival. Just as a little child projects its fantasies into the outside world and never doubts that they have a being outside itself, so religion projects its fantasies of spirits and gods, without realizing the infantile error it is making. The whole world-wide mysterious business of gods, from savage to Christian, is an example of projection on a colossal scale.

MIRACLES

The subject of miracles is another matter on which science and religion are diametrically opposed. A miracle is an event due to supernatural agency, and what has just been said about the non-existence of the supernatural must apply also to any supernatural agency. Nevertheless, religion has always set great store by the occurrence of miracles. The Roman Catholic Church, for example, does not promote any dead member of its faith to be a saint, however suitable in other ways, until what it holds to be proof is forthcoming of the performance of at least four miracles in the name of the proposed saint. Special value is attached to the miracles of restoring sight to the blind or hearing to the deaf, healing the sick instantaneously, and raising the dead to life.

The psychological explanation of miracles can be given by an example. If one leans back in one's chair, one can picture in one's mind the miracle of Jonah in the whale's belly, even including the great fish, after having been spoken to by God, vomiting Jonah safely out on the dry land. We can similarly imagine chariots of fire, horses of fire, and Elijah going up in a whirlwind into heaven. If only we could still project these imaginings, we should be

well on the way towards believing in miracles. But this power left most grown-ups long ago, and they can see their mental pictures only as inside their minds. Moreover, as soon as one applies one's reality thinking to these biblical tales, one encounters the greatest difficulty in admitting the truth of them. One recalls that whales happen to have peculiarly narrow gullets, which restrict their swallowing powers to very small fish. One knows also that a man can live for hardly more than three minutes, let alone three days and three nights, shut off from oxygen as in a whale's stomach. Our knowledge of the intelligence of whales and great fish makes it impossible to accept the detail of the compassionate vomiting on to dry land. Equally with the miracle of Elijah, all the reality experience on which we find we can safely rely makes us reject as unreal and impossible the very existence of a chariot and horses made of fire. At the same time, both these delightful stories seem to bear the very stamp of a child-level of credulous interest, such as is found today in every nursery.

It is not at first sight easy to recognize any essential connection between religion and miracles, and it might be supposed that religion could have got along very well without concerning itself with them; and yet we know how vigorously the Chris-

tian Churches in recent times have defended them against scientific criticism. This can hardly be without its psychological significance. Is not the connection understandable when we recall that in the sphere of psychic reality, natural law does not operate, and the miraculous is a normal happening, daily, hourly, and minutely? The more this imaginative faculty is cultivated and indulged by the religious-minded, the more familiarized they must become with miraculous events, and the more prone to believe in them. Might we not further say, that the very fact of religion's close association with miracles is evidence of its origin in the realm of fantasy?

MAGIC, RELIGION, SCIENCE : COMPONENTS OF ALL HUMAN NATURE

We reach, then, the important conclusion that magic, religion, and science are three expressions of normal psychical activity. Two of them—magic and religion—being derived from the pleasure principle, stand much closer to each other than to science, which is derived from the reality principle. Both magic and religion claim to be able to influence the outer world in the interests of human beings; but psychology denies this, and relegates both to the sphere of imagination and delusion.

Since magic and religion appear in children earlier than science, they would seem to be the deeper and more primitive, and science a relatively new development. Similarly, they both precede science in the historical evolution of civilization. Should it not be inferred, therefore, that science, as the more recent, is a more advanced state of the process of civilization? Certainly the historical facts relating to Christianity and to science would seem to bear this out.

Magic indeed has been so far outgrown in modern civilization as to have no advocates nowadays, whether religionists or scientists; and yet in both ancient Greece and Rome even State policy was decided on occasions by reference to magical influences. Still, no one today urges the better cultivation of magic, or the use of it in solving national and social problems. The modern field of contention is left to science and religion; and the only conflict which is of present interest is that between these two. This will be taken up in the next chapter.

VITALISM AND NEO-VITALISM

Reference might conveniently be made here to a subject not mentioned till now, which has been a side-issue in the growth of scientific opinion since the early seventeenth century. It represents a dissenting point of view among scientists themselves. The more generally accepted belief among them is that natural phenomena are to be wholly accounted for mechanically and materialistically, in terms, that is to say, of natural forces which can be investigated experimentally. In disagreement with this, the vitalistic view is that, in addition, the operation of a guiding directive force must be recognized, of a vital principle which is and always must be beyond the scope of scientific experimentation. Vitalists accept the mechanistic interpretation over a very wide field, from planetary motion to digestive processes, but affirm, particularly in respect to the still unsolved problems of science, that a mysterious element is inherent in the very nature of life, which must always elude the scientific method. To this element has been variously given the names of design, directive force, vital force, vital power, vital impulse or spirit.

A modern form of the belief, "neo-vitalism," has among its best-known exponents Henri Bergson

with his "élan vital," and Hans Driesch with his "entelechy." Driesch's entelechy, briefly stated, is conceived of as a something which is superior to physico-chemical laws and independent of them. It is entelechy that constitutes an organism as a man makes a machine, and though it resembles human intelligence, it is superior to it. Perhaps the most recent authoritative support of vitalism was that given in 1933, at the meeting of the British Association, in the presidential address to the Section of Zoology, when Dr. James Gray, the distinguished Cambridge zoologist, developed his view that the facts of biology cannot be understood by a mechanistic explanation of them, and that the working of a mysterious force must be acknowledged in the properties of living matter.

Much argument has been made on both sides of the question these last two or three centuries, and with first-rate intelligences on each side. Among the vitalists were Descartes, Bichat, Claude Bernard, and among the mechanists Lavoisier, von Liebig, du Bois-Raymond, and Huxley. My purpose here is not to add fresh argument, but to offer an explanation of the difference of opinion in the light of modern psychology.

In a matter of this sort psycho-analysis has accustomed us to look deeper than at rational

arguments for or against. We may be sure that the point of view of the individual scientist depends on his psychological make-up, with its unconscious motives impelling him to proffer this or that line of rational argument. The first psychological comment on the attitude of the vitalist and the neo-vitalist must be its essential resemblance to the religious attitude. In both it is held that the natural world shows the working of a higher superior power, and that this power possesses mysterious qualities which place it outside and above the scope of scientific inquiry. Now the religious attitude indicates, as we have seen, the persistence in adult life of childish tendencies of mind. We shall be prepared, therefore, to find that the same holds of vitalism. The presumption would be that the scientific maturation of the scientist who is a vitalist has been similarly checked by some childish feature of temperament.

In looking for evidence of this it will be noted that the scientific field to which vitalism has been applied was very much wider in the past than now. At one time it included even the motions of the planets—their mysterious nature was held to be proof of a superior guidance—as well as the then unknown functions of the human body. As science gradually explained more and more of the “mysterious” phenomena, vitalists gradually accepted the

mechanistic explanation of them; invoking, however, a directive force for phenomena which were still beyond scientific explanation. All the while, therefore, vitalists have been concerned with an ever-narrowing range of possibilities, and each generation of them has accepted the mechanistic interpretation of phenomena which were mysterious to their predecessors.

The important conclusion is that vitalists are mechanists so far as established science goes, and reserve their vitalistic view for the problems which at the time are unsolved, and especially for those which science is attempting to solve at the moment. In this way present-day vitalists agree that the eye and the ear are to be explained structurally and functionally in terms of physics, and that physico-chemical laws are indispensable in understanding the processes of digestion, metabolism, muscular contraction, heat production, and so on; but they take a vitalistic attitude to embryology, evolution, tissue-repair, and other problems which are in process of solution.

All this seems to tell us, psychologically, that a vitalist's scientific faculty works all right—that is to say, mechanistically—when it is concerned with known facts, but ceases to function when confronted by the unknown. It is then replaced by an appeal

to some mysterious, superior power. When a mental faculty fails like this, the probable explanation is that fear has paralysed it. We know, too, that one of the strongest fears in children is precisely a fear of the unknown. The first impulse of a child frightened by the unknown is to run for protection to one of its parents, and it feels comforted in the thought that the responsibility for dealing with the situation can now be left to one whose superior strength and knowledge is so evident.

My suggestion is that the century-old conflict between materialism and vitalism is understood by regarding it as a problem of temperaments. A scientist who is a vitalist owes his conflicting attitude to awe and fear in face of the unknown—an unconscious fear, of course, but nevertheless recognizable by others in its numbing effect on the freedom of his intellection. It is a fear that dates from childhood, and is habitually stirred by the very thought of the unknown. The vitalist, therefore, is prompted to abandon the effort to investigate the unsolved problems; instead, he turns back from them and invokes a superior power, and under its protection feels himself relieved of responsibility for standing up to the situation.

By way of illustration of this let me cite a couple of cases: the latest known to me—that of Dr.

Gray, which was mentioned earlier, and the oldest known to me—that of William Harvey. My hope is that the exemplar who is happily still living may be ready to forgive any liberty I may be taking, when he sees the superlatively excellent company in which I have placed him.

No psychologist can read Dr. Gray's *Textbook of Experimental Cytology* without being doubly impressed, first by the great store of facts which he has assembled in it, and secondly by his evident sense of failure in piecing them together in order to explain or understand them. He seems to feel lost in the wood, with no expectation of ever finding the way out. This helplessness is more than hinted at in many casual comments—"obviously a depressing task," "doomed to failure," "from the depths of very profound ignorance." Emphatically hopeless is his "baffling in the extreme . . . all attempts have failed," and "try as we will it seems impossible to point to any inanimate system . . . reflecting even feebly the biological facts." Finally, when he comes to make the crucial choice between mechanism and vitalism in explaining his facts, he exclaims, "the difficulties are overwhelming," and comes down on the side of vitalism, preferring, he says, to regard living material as "organized in a way quite unknown in the inanimate world" (p. 97).

It is true that the mechanistic explanation of his biological facts is not yet forthcoming, but he might have shown both courage and perseverance in face of difficulties, instead of letting them overwhelm him. He need not then have invoked the help of any mysterious power. All in good time science will find the explanation of the facts which at present perplex us.

Now to take the case of William Harvey. At the outset of his investigation of the circulation of the blood, he, too, found the task of understanding the motions and uses of the heart "so truly arduous, so full of difficulties" that, so he tells us, he began to think "that the motion of the heart was only to be comprehended by God." So far Harvey and Dr. Gray are alike. Both, when confronted by the unknown, become uneasily aware of the difficulties ahead; both experience a qualm of faint-heartedness, which makes them mistrustful of their competence; and both feel awed, and begin to think their scientific task is beyond them, and is to be comprehended only with the help of some mysterious power. But happily for the world, Harvey did not allow himself to remain awed, let alone deterred. On the contrary, he made patient and prolonged study of many hearts of many animals, until in the end he comprehended their

motion. He possessed courage and perseverance, and by eventually discovering the mechanical explanation of the movements, freed them from anything mysterious.

Perhaps every scientific researcher at times feels misgiving, and even mistrust, of his capacity to carry his work through. If he is one who has courage, patience, and perseverance, he almost certainly succeeds in some measure, with the result that the boundary of science is extended. In so far as he is timid and fearful, he must be uncertain of himself, and is likely to abandon his inquiry because of difficulties which seem overwhelming to him. Ineffective himself, he doubts the efficacy of the scientific method he is using, and he turns from it to appeal to some mysterious vitalistic power.

CHAPTER IX

BEYOND CHRISTIANITY

IN the last chapter we recognized magic, religion, and science as normal constituents of human nature, and as the three great influences in social life. Of these, magic, though still much more widely indulged even in civilized communities than is generally realized, is no longer seriously advocated by any as a guide to human conduct and affairs. Reasons were given for placing religion in the same category with magic, that is, a guide which should be superseded in the present stage of civilization. Since many will agree with this, and many others disagree, current interest is still lively in the conflict between the claims of science and those of religion.

On the psychological aspects of this conflict, I may be permitted to quote again from my same article (p. 270) : "The conflict between religion and science represents a difference between psychic and objective reality. Each gives credence only to the laws which operate in its own sphere. Each has truth indisputably on its side; each remains ignorant of the other kind of truth. Of the two,

psychic truth is the more primitive and expresses the deepest needs of the individual; objective truth is the more highly acquired and best serves in subduing the forces of nature in the interests of the individual. Neither can be disregarded, and the strife between them cannot cease until both are recognized and directed to a common end."

This representation of the essential elements in the conflict, put forward in 1921, still holds valid; and so far as I know, it has not yet been advanced any further. I am not sure that it might not now be possible to carry it forward, more particularly in the direction of biology, and to try to bridge the gap, wide as it is, between religion and science on the one side and biology on the other. The present book is not the place for this, and I shall hope to attempt something of the sort later elsewhere. In the meantime, some useful conclusions can be drawn from the position we have now reached.

In the quotation given above I spoke of the need, first of recognizing both the psychic truth which religion represents, and the objective truth of science, and secondly of directing both to a common end. To what common end can they be applied? This question should not be difficult to answer, if we accept the psychological explanation of religion which has been given. Religion, no less than magic,

is an expression of the pleasure principle. Like magic again, it belongs to an infantile level of individual psychological growth, and to an elementary stage of social evolution. Religion—or magic—when believed in by men and women or by present-day civilized communities, can only be reckoned as a failure to mature—in just the same way as the neurotics and the psychotics. In the only kind of complete growing-up which is appropriate to the present age, the magical and the religious stages should be left behind, as the reality principle takes shape and leads to the interest in objective truth which we call science.

FUNDAMENTAL CONTRADICTIONS

On the other hand, there are those who maintain that science and religion can still be reconciled. If any of their sanguineness has remained after reading Chapter VI, where the grounds of the incompatibility of science and religion were discussed, it will hardly survive the following considerations. To show the unbridgeable gulf that separates science and religion, the point of view of each may be contrasted on a couple of subjects which are reckoned of the first importance in religion.

The first is the doctrine of the Trinity. The unedifying story has been given in an earlier chapter,

of the introduction into Christianity of this doctrine, which already formed a part of several pagan religions. The doctrine affirms that there are three Persons in one God—the Father, the Son, and the Holy Ghost—that Christ is truly God, co-equal and co-extensive with his Father, separate and yet one, and that the Spirit proceeded from the Father and from the Son. This belief is held by most devout religionists with an intensity of conviction and fervour. In the past it has stirred a vast amount of mediæval fanaticism, with bloodshed and massacre; and even today it is regarded as justifying sectarianism. To a scientist, on the other hand, who is unhampered by religious faith, an argument about three persons being one person is frankly reminiscent of the barren hair-splitting disputation so beloved of the old-time Schoolmen—for example, the number of angels that can stand on the point of a needle. To a psychologist, the highly elaborated theological speculation disclosed in the doctrine suggests, in its remoteness from reality, the fine-spun thought-processes that characterize delusions. On this matter of the Trinity there can be no harmonizing science and religion.

The second important matter on which they are irreconcilable is a belief in God. This is fundamental in most religions; and in the Christian

Church it takes the form of a belief in God the Father. In keeping with this, no sin is more deadly than to deny God, no word is more hateful to a Christian than that of atheist, and the punishment for atheism has been death. Scientifically regarded, the subject has nothing of these large proportions about it, and it is open to any man to be theist or atheist according to his personal inclination; least of all is a sincerely held belief to be penalized. Psychology has carried the matter a stage further. It has found that psychological development on healthy lines implies outgrowing the parental influence, and that adolescence should be the time of increasing independence, when the credulity of childhood is replaced by scientific scepticism. As this proceeds, any idea of dependence on a heavenly Father is outgrown also, and the stage of atheism is naturally reached. But with religion regarding atheism with horror and detestation, and with psychology indicating it as the desired culmination in the growth of the best characters and intelligences, what prospect can there be of harmonizing these two views?

Many other subjects might be taken and the same conclusion of irreconcilability reached. It is not true to say that there is no conflict. Only the well-intentioned could hold this view, and not they once

they gave weight to the mass of historical facts proving the century-old conflict between religion and science. Not only does a conflict exist, but it is an antagonism amounting to incompatibility. Modern civilization has no alternative but to make choice between them. It must plan either for the cultivation of religion at the expense of science, or for developing science at the cost of religion. At the present day, only a fraction of the total of human energy that is available for social enterprise is being utilized in the service of science : very much of it is still running to waste in the interest of religion.

RELIGION SUPERSEDED

This brings us back to the question, to what common end can science and religion be directed? No more important question than this can be propounded at the present stage of civilization. The need is to cease applying pleasure thinking to the illusory aims of religion, and to use it in advancing science. In this way psychic and objective truth will both be directed to a common end. I do not see how otherwise this can be achieved. It means that all the imaginative power of individuals will be purposely linked to science, and none of it left to be dissipated by religion.

The only exceptions here are those—probably few

in number—who have so grown up that the religious attitude to life is their only possible one. They would be free to follow their inclinations. A much more important exception needs to be specified. Some of the imaginative power should continue, as now, to be devoted to the creative arts. Science alone does not fully satisfy, and few are not the happier and better by turning from it at times, to passively enjoy the creative activities of others in books, music, and other forms of art.

All these many centuries religion has been accepted as mankind's comfort in its sufferings and struggles with life; but it is plainly decaying all around us, and religious faith has grown cold. Psycho-analysis has severed its very roots, by showing that it belongs to the unreal and the fantasmal, and that it bears all the marks of a child mentality.

The bearing of this on the special field of medical psychology is very close. Because in the last twenty-five years more has been learned, scientifically, about the working of the human mind than in the previous 2000, psychological methods of treatment have no more in common with the spiritual methods of religion than has modern medical science with the cure of bodily disease by exorcism and prayer.

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To many the suggestion of having done with Christianity will come as a disagreeable shock, if only because of the prospect it might open up. All kinds of difficulties and troubles in our civilization have been anticipated—that Christianity is the great power for good and its overthrow would jeopardize society if not overturn it; also that the position of women in the civilized world would be imperilled. These and other objections are discussed and answered by Mr. Vivian Phelips in *The Churches and Modern Thought*, and he shows how little alarm need be felt in envisaging the situation when Christianity is superseded. Christianity, he points out, has been a fertile source of hatred, estrangement, and wars; while kindness, consideration, and charity existed among peoples before Christianity, and are found today among pagans. To this it might be added that these human virtues exist even among atheist scientists. Further, that in the past the influence of Christianity has been both good and bad, and no one can say how good and how bad; but that at the present day the question has ceased to have practical value, since we became able to understand that religion, like magic, belongs among the delusions of the mind. It is no longer possible to accept the guidance of either magic or religion.

GUIDANCE BY SCIENCE

A world guided by science must have new values in most things. In freeing himself from his dependence on God, man must look to himself for help. Instead of striving for the salvation of his soul in a future heavenly life, he must plan his welfare here below. After all, has not a divine scale of reward and punishment something puerile about it—yet another childish estimation of values? We cease to believe in either of those two gigantic inventions of the theological mind, a hell with a Devil, where the ungodly are condemned to eternal punishment and torture, or a heaven with a God, where the orthodox righteous are rewarded by everlasting bliss. The one has ceased to terrify, and the other to incite. We perceive that ethical standards exist apart altogether from religion, and that we can best shape our conduct out of regard for our fellows, and without any thought of a deity, good or evil. All interest in a future life is transferred to the present life: concern for the heavenly powers is replaced by concern for the forces of nature. The circumstances of social life become of first importance, and no "higher" values than these can be admitted. The single aim is to promote and extend the investigation of the conditions which affect human life and human

welfare. This implies an increasing knowledge of what goes on inside a human organism, and outside it also. Within, it comprises all processes from the psychological and physiological to the chemical and physical. Without, it includes the study of other forms of life, animal and plant, which can add to our understanding of human life and of life in general. New precepts and laws must follow, and these new standards can provide an outlet for the religious impulse in the way I have just indicated, while at the same time they must utilize for the good of mankind, the vast amount of knowledge and experience that has been acquired since the remote days when Christianity set up new standards in advance of the old.

In particular, the religious distinction between good and evil, holy and sinful, righteous and wicked, loses its validity. Psychologically, the so-called wicked elements in human nature are those which are naturally implanted in it; they are inevitable, inescapable, and therefore can imply no sort of individual responsibility for them. Moreover, the so-called higher traits of character are one and all compounded of the lower and so-called wicked elements: they take shape in adolescence or earlier, by being moulded out of the lower in early childhood, and they develop in no other way. Incidentally,

this insight into the growth of character of whatever kind promotes a great tolerance of the imperfections and failings of others. To describe two forms of the same impulse as good and evil is not scientific : psychologically, they are both equally normal, and the criterion of good and evil is replaced by that of mentally sound and unsound. That which makes for mental health is right, and all that tends towards mental ill-health is wrong. The religious standards based on the wish to please a deity are superseded by the scientific principles of mental hygiene.

In a world guided by science, one of the first requisites is that there should be no more intolerance such as has marred the old religions. It should no longer be possible to try to impose particular beliefs on others, who may or may not be temperamentally disposed to agree with them ; least of all is this to be attempted by punishing unorthodoxy with whatever degree of severity. Happily, in this enlightened country the State has, with the consent of general opinion, already gone beyond religious sectarianism and established complete toleration of belief : no religious body is permitted any longer either to force its views on others or to penalize or persecute those of other ways of thinking.

In setting up these new standards, we should be careful not to deprive ourselves of the advantages

accruing to us from the past; nor to belittle the accumulated wisdom and experience inherited from those who have lived before us. There are conservative trends in all, which impel us to respect and preserve what is good and sound from the past. But progress is not to be cramped and obstructed by a respect for the past, any more than tradition is to be accepted for a moment merely because it is tradition. And yet this, as we have seen, is inherent in all religions, just as in everyday life are always some who praise the good old times, not knowing that they were generally the bad old times. On the contrary, change and innovation are to be accepted as both inevitable and desirable, and not only dead branches should be lopped away, but dying ones.

EMANCIPATED CHILDHOOD

Another great change that comes with the substitution of science for religion is, it seems to me, in our ideas of the relations between parent and child. Seen in its primary form, this is the biological question of the influence of one generation on another. Even in its social and educational aspects it is a matter of momentous significance, since it includes all that is involved in bringing up children, and, therefore, in shaping the future of humanity. It might be reckoned as second in importance only to

the extinction of the supernatural. In order to appreciate the difference in the scientific and religious attitudes to it, we need to recall the changes in opinion that have occurred on the questions of the dependence of a younger generation on an older, and of the claims and rights of each of these when their interests conflict.

History tells us that the idea of a child having rights against its parents, or of a younger generation against an older, is so recent as to be almost novel. Previously, and for many centuries, the wishes and interests of parents were paramount; and children were required to conform to these: that is to say, to accept the parental views, and to do what they were told. In keeping with this, the value set by a nation on its children was very low. In witness of this we may cite a couple of examples. As recently as the early part of last century, the mortality in foundling hospitals here and in other countries was so high that few of the foundlings admitted were alive at the end of twelve months. Public opinion had nothing to say about it. Witness again the huge consignments of children who were supplied in the earlier days of industrialism, little more than a century ago, by parochial authorities for work in factories and mines. Many of these children were not more than four or five years old, and practically

all of them were worked for the greater part of the twenty-four hours, Saturdays and Sundays included. They soon wore out and died, very many of them, and their places were filled by more wagon-loads of parish children dispatched from London and other big towns. Public opinion saw nothing wrong in this. It seemed fitting that children should be dealt with and disposed of in the interests of grown-ups. The contemporary English law on the subject was summarized by Lord Chancellor Eldon in these words : " The Courts of Law can enforce the rights of the father, but they are not equal to the office of enforcing the duties of the father."

Neither in national life nor in the individual family did the older generation recognize any rights of the younger, and it knew little or nothing of the distinctive conditions of child life. But gradually an interest in children began to take shape—hardly noticeable until the eighteenth century, and only after the middle of last century at all effectively—until now the welfare of children is accorded an importance as never before in both family and social life.

To what is this change attributable? How can it be fitted in, as should surely be possible, with those other big changes which have come over modern civilization? The following considerations

would suggest that it has come as a consequence of the scientific outlook replacing the religious. Religion, Christianity included, since it is based on the worship of ancestors and other dead people, is almost wholly interested in those who have already lived, and is specially concerned to follow tradition, even to the exclusion of most other considerations. Moreover, it is preoccupied with a future life, and therefore sets small value on the conditions of the present life. With its attention turned to the past, it can feel little interest in children who are essentially a part of the present, or in the mundane circumstances on which their welfare depends. Further, the religious over-estimation of times gone by sheds a reflected lustre on old age and venerableness, whether in persons or things—examples of this abound in ecclesiastical life—and children are antithetically excluded from this, and regarded as of small account.

On the other hand, science, as a consequence of its concern with the present material world, has come upon children in the immediate environment of human beings. Its biological interest has turned naturally to the study of them as human offspring. No longer able to believe in personal immortality, it recognizes in children the only means of perpetuating and improving the human race. It finds

that to learn about the young adds to our understanding of the mature. It observes that children are more susceptible to influences good and bad than are grown-ups, and much more so than the aged, and are therefore a better indemnity for special consideration given to them. With its interest in the present and the future, science accords increasing importance to child-life, including the relations between children and parents.

In keeping with this, science is fast approaching a question of quite exceptional significance. It is whether, when the interests of grown-ups and children conflict, it is not best to put the children's welfare first—the very contrary to what our religious-minded forefathers have been accustomed to do. If this is answered affirmatively, the resulting changes in everyday social life must be great. But it should not mean penalizing parents in the interest of their children: in fact, to present the subject as a conflict between parents and children would be unfortunate. By considering it in terms of biology, with the disturbing element of human emotion eliminated, the matter can be studied as the relations between successive generations.

To carry further these ideas of the contrasting attitudes of science and religion to child-life. We have seen how science began to criticize Christianity

only very rarely, and as it were with diffidence, but that it gradually became more and more outspoken about it. Christianity, on the other hand, has never conceded it the right of expressing its opinion; it has always taken its criticisms badly, and on many occasions has been unable to restrain its indignation at them. For all the world I can see no parallel to this so apposite as the psychological conflict which is to be witnessed in most households, between a member of the younger generation and one of the older. At each of its stages it suggests the struggle between science and religion from before Copernicus to the present day. It seems worth setting out this psychological conflict step by step.

For several years a little child does what his parent tells him, and does it readily because so far he is without experience enough to be critical. As he grows a little older, and begins to detect errors and inconsistencies in the views offered to him, he begins to grow dissatisfied; but he keeps himself in check out of respect for a parent whom he has been taught it is his duty to look up to with reverence. At last the day comes when he breaks out, and says something of what he thinks. The parent is shocked and pained at this show of what he calls disobedience and ingratitude, and in anger retaliates by sharp punishment. He expects in this way to stop any

repetition of the insubordination. But the youth finds himself even less disposed than before to show submissiveness, and, though the scenes between them are infrequent, they still occur. By this time the parent has realized the ineffectiveness of punishment, and contents himself with firmly maintaining his ideas, and reproaching the youth for his rebellious spirit. From now on the youth musters courage to speak his mind more and more freely, until in early manhood he has confidence enough to look his parent in the eyes and say exactly what he thinks, undeterred by any feelings of dependence. But the parent is now too old to change his views to meet his son's, and remains stubborn and unyielding. If he could, he would still enforce the obedience of many years ago.

This normal process of emancipation of the younger generation from the older seems to resemble stage by stage the liberation of science from Christianity. First, the long period when science was merged in religion. Then the earliest scientific discoveries at the Renaissance, which proved that the venerated Church was fallible, and a resulting discontent with its oppressive claims, though still the wish to continue to pay it reverence. Next, the retaliatory indignation of the Church, which tried to suppress the new spirit by burning Bruno, tor-

turing Galileo, and rooting out all heretical opinion with the help of Inquisition, Jesuits, and the Index. These failing, the following stage saw science struggling to assert its independence, feebly for a long time, but latterly more vigorously. The Churches, unable to stop this, continued to obstruct its advance. Finally, but only within the last few decades, science has outgrown its misplaced awe of religion and its respect for it, and is no longer to be intimidated, even by the cry of sacrilege. In terms of anthropology and psychology, it has become courageous and self-confident enough to look religion full in the face, and say exactly what it sees. The Churches for their part have come to realize that retaliatory punishment is out of date, but they hold firmly to their old ideas. They reproach science's every fresh step towards complete emancipation, and would still impose their old authority on it, if they could.

Can it be that the conflict between venerable religion and youthful science has its origin in some psychological, or even biological, difference between them, such as that between one generation and the next? And that in a retrospect of the last few thousands of years, the emergence of religion before science signifies some biological process which has not yet been suspected? Is it only a coincidence
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that the course of the centuries-old struggle between science and religion should have followed almost identically the regular steps by which the younger generation emancipates itself psychologically from the older? Or do we dimly see here the same process, or at any rate a similar process, working itself out, slowly over many generations of civilization, and quickly between the successive generations of a family? Here again I content myself merely with setting down these speculative ideas, perhaps to consider them more fully on another occasion.

The suggestion has at any rate one useful application. The heated and angry feelings which are so often allowed to mar discussions on the matter by followers on each side are surely beside the point. It should be possible to exclude them by viewing religion and science as stages in human development—equally natural, equally well-founded, and both of them inevitable. It is no reflection on religion if civilization should be leaving it behind as something it has outgrown, nor an exaltation of science that mankind is now embarking upon it as the next stage of human evolution.

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